The Oil and Gas Journal

PUBLISHED WEEKLY BY THE PETROLEUM PUBLISHING COMPANY AT TULSA, OKLAHOMA

P. C. LAUINGER, *President* — *Editor*, C. O. WILLSON

W. T. ANDERSON, *Managing Editor* — JAMES McINTYRE, *Consulting Editor*

W. T. ZIEGENHAIN, *Engineering Editor* — L. G. E. BIGNELL, *Prod. Engineering Editor*

C. K. FRANCIS, Ph. D., *Technical Editor* — W. L. NELSON, *Metallurgical Editor*

Associate Editors

T. F. SMILEY — T. P. SANDERS
DAL DALRYMPLE — PAUL REED

District Editors

Houston, Sterling Bldg.
NEIL WILLIAMS — F. L. SINGLETON

Fort Worth, Petroleum Bldg.
D. H. STORMONT

Shreveport, City Bank Bldg.
GEORGE WEBER

Los Angeles, Union Oil Bldg.
L. P. STOCKMAN

Washington, Natl. Press Bldg.
HENRY D. RALPH

Saginaw, News Bldg.
O. C. PRESSPRICH

Denver, State Office Bldg.
TOLBERT R. INGRAM

New York, 415 Lexington Ave.
H. STANLEY NORMAN

Oil City, Derrick Bldg.
J. P. O'DONNELL

Chatham, Ontario, Box 136
VICTOR LAURISTON

S. H. ROURKE, Business Manager

M. F. BALDWIN, Circulation Manager

Advertising

E. KLAPPENBACH, Vice President

New York, 415 Lexington Ave.
C. L. CAIN

Cleveland, Leader Bldg.
HOWARD MARKT

Chicago, 300 W. Adams St.
C. R. FARMER

Tulsa, 114 W. 2nd St.
KENNETH J. LANGLEY

Houston, Sterling Bldg.
WAYNE RIVES

Los Angeles, 1406 S. Grand Ave.
J. HOWARD TINKHAM

Cologne, Germany—1 Laudahnstrasse
A. J. CHAMBERS

Table of Contents

Vol. 37, No. 11 — July 28, 1938

News Developments

Summary ... 51
Modern Oil Refinery (Photograph) ... 55
Sparks From the News ... 56
Southern Minnesota Geology Studied for Oil Indications ... *George A. Thiel* 57
Continental Lets Awards for 232-Mile Pipe Line ... 58
Effects of Sunday Shutdowns on Stripper Wells in Texas ... *Mitchell Tucker* 59
Bureau of Mines Estimate for August ... 60
Editorial: Strengthens Confidence ... 61
State Department Sends Firm Note to Mexican Government ... *Henry D. Ralph* 62
News From State Capitals ... 63
Obituaries ... 64
Madison Grand Jury May Not Consider New Cases ... *R. B. Pyre* 66
Exploration for Oil Fields Stimulated by Soil Analysis ... *L. G. E. Bignell* 69
K.M.A. Needs Outlets With 15 Completions Weekly ... *D. H. Stormont* 71
Refinery Projects and Natural Gasoline ... 78
Natural Gas and Pipe Line Activity ... 79
Development in Shale Oil Reported at World Conference ... 81
News From Foreign Lands ... 84
Complete Text of Judge Stone's Order at Madison ... 199

Semi-Annual Review

Consumption Upturn Aids World Oil Conditions ... *C. O. Willson* 52
World Output 8,053,381 Bbls. Less Than First Half of 1938 ... *H. Stanley Norman* 73
Efforts for Stabilization Reduce Completions in First Half of Year ... *James McIntyre* 74
First Half of 1938 Witnessed Efforts to Curtail ... *James McIntyre* 75
Service Station Prices Showed Little Change ... *D. H. Stormont* 110
Average Refinery Prices First Six Months ... *D. H. Stormont* 112
Pipe Line Activity Increases at Close of Half Year ... 114
Wildcatting Being Stimulated by Results of Exploration ... 115
Exports of Crude and Products in Half Year ... *H. Stanley Norman* 117
Deaths in the Industry During First Six Months ... 118
Crude Price Changes ... 196

Illinois, Ohio and Kentucky ... 123
Eastern Fields ... 124
California ... 127
Rocky Mountain District ... 130
Texas and Louisiana Gulf Coast ... 139
Canada ... 148
West Texas and Panhandle ... 151
Michigan ... 156
Oklahoma ... 161
Southwest Texas ... 170
North Louisiana and Arkansas ... 176
Kansas ... 182
North and Central Texas ... 188
East and East Central Texas ... 191

Engineering—Operating

Refrigeration Used When Processing Gas From Distillate Well ... *Mitchell Tucker* 86
Fast Moving-Time Made With Unitized Drilling Equipment ... *Paul Reed* 87
California Refinery Operates on Natural Lube Oil Stock ... *T. P. Sanders* 88
Thermal Catalysis of Carbon Monoxide and Hydrogen ... *A. H. Nissan* 89
Rotary-Type Pump in Pipe Line Service Utilizes Unusual Design ... *Irving H. Buck* 98
Operating Ideas ... 103
Questions on Technology ... *C. K. Francis, Ph. D.* 107
Problems From Readers ... *L. G. E. Bignell* 108

Field Operations

Field Operations Summarized ... 205
Eastern Fields ... *Staff Correspondent* 206
Louisiana and Arkansas ... *George Weber* 208
California ... *L. P. Stockman* 211
Gulf Coast ... *Neil Williams* 213
Among Drilling Contractors ... 214
West and Central Texas and Panhandle ... *D. H. Stormont* 216
Oklahoma ... *Dal Dalrymple* 217
North and East Texas ... *D. H. Stormont* 220
Kansas ... *Dal Dalrymple* 221
Rocky Mountain Area ... *T. R. Ingram* 224
Michigan ... *Otto C. Pressprich* 228
Central West ... 229
Southwest Texas ... *F. L. Singleton* 232
Canada ... *Victor Lauriston* 234
Wildcat Operations ... 235
Key to Abbreviations ... 235

Markets and Prices

Crude Prices ... 242-250
Group 3 Market ... *T. F. Smiley* 246
New York Market ... *H. Stanley Norman* 247
Tank-Wagon Market ... 248
Refinery Prices ... 249

Additional Features

Personal Paragraphs ... 244
Record of Oil Securities ... 251
Equipment News ... 252
Classified Advertising ... 254
Oil Man's Calendar ... 255
Advertisers' Index ... 256

SUBSCRIPTIONS: United States, 1 year, $6.00; 6 months, $3.00. Elsewhere, 1 year $7.00; 6 months, $3.50. SINGLE COPIES: 20 cents. Price of any back copy more than 1 year old is 50 cents.

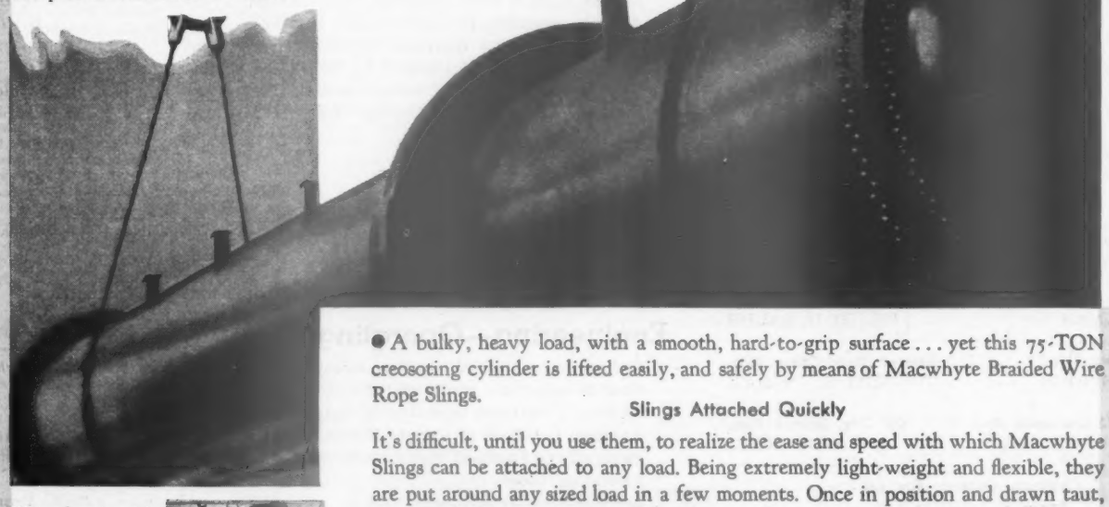
Copyright, 1938, by The Petroleum Publishing Company

HEAVY HANDLING

TAKES LITTLE TIME WHEN YOU USE

Macwhyte Braided Wire Rope Slings

Close-up (above) of Type No. 5, Atlas 8-Part sling used to lift giant cylinder (shown below) at the Chicago Bridge and Iron Company Plant, Birmingham, Ala. Note extreme flexibility and patented braided construction.



● A bulky, heavy load, with a smooth, hard-to-grip surface . . . yet this 75-TON creosoting cylinder is lifted easily, and safely by means of Macwhyte Braided Wire Rope Slings.

Slings Attached Quickly

It's difficult, until you use them, to realize the ease and speed with which Macwhyte Slings can be attached to any load. Being extremely light-weight and flexible, they are put around any sized load in a few moments. Once in position and drawn taut, they hug the load tightly, with no chance of slipping.

Do the Job Safely

The special braided construction of these slings, a Macwhyte patented feature, gives them *unusual* flexibility. Fabricated with right and left lay endless ropes, they are safe beyond comparison. Furthermore, this construction lengthens their service life.

Macwhyte Braided Wire Rope Slings are the choice of hundreds of manufacturers today because, day after day, they do the job quickly, safely, and economically.

NO. 262

Write for pictorial, on-the-job, booklet "How To Handle Loads Safely." Shows how leading manufacturers use Macwhyte Slings to handle materials with greater speed and safety at lower cost. WRITE FOR BOOKLET TODAY!

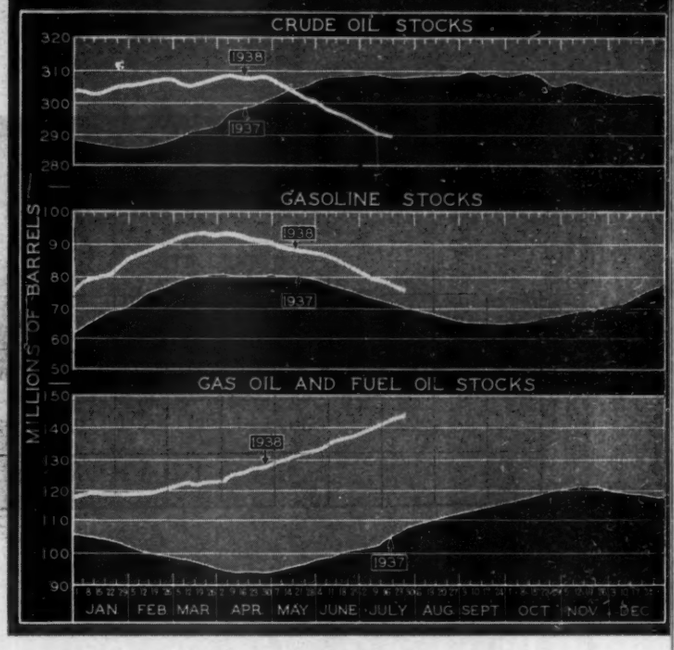
MACWHYTE COMPANY
KENOSHA, WISCONSIN
Manufacturers of Wire Rope and braided wire rope slings.
Distributors throughout the U. S. A.

Member National Safety Council

MACWHYTE
Braided WIRE ROPE *Slings*

Trends

Improved Buying in All Grades of Fuel Oils Helps Markets



AN improved demand for all grades of fuel oils with upward price adjustments on several grades in eastern markets was an encouraging development of the past week. It was the first definite indication since the market decline began last fall that a turn for the better was under way in these products, which for the country as a whole represent approximately 40 per cent of a barrel of crude oil.

CRUDE PRODUCTION *3,349,378 barrels daily average—up 22,450. One year ago 3,581,272 barrels.*

CRUDE STOCKS *289,312,000 barrels as of July 16—down 1,157,000. One year ago—307,139,000 barrels.*

GASOLINE STOCKS *76,366,000 barrels as of July 23—down 2,355,000. One year ago—72,020,000 barrels.*

GAS AND FUEL OIL STOCKS *143,041,000 barrels as of July 23—up 973,000. One year ago 106,260,000 barrels.*

REFINERY RUNS *3,180,000 barrels daily week ending July 23—down 15,000. One year ago 3,380,000 barrels.*

Despite the improvement in the crude oil and gasoline statistical situation in recent weeks, market students have been concerned regarding the trends in fuel oils, particularly the heavy grades, as stocks continued to mount from week to week. From April 2 to July 16 stocks of fuel oil and gas oil, according to the A.P.I. reports, increased 18,447,000 barrels and are now the highest in several years for this season. While gains in fuel oil stocks are a normal development during the summer months ,the increases this year coming after fall and winter months of disappointing demand, have been too large and prices have declined, constituting a threat to the entire industry.

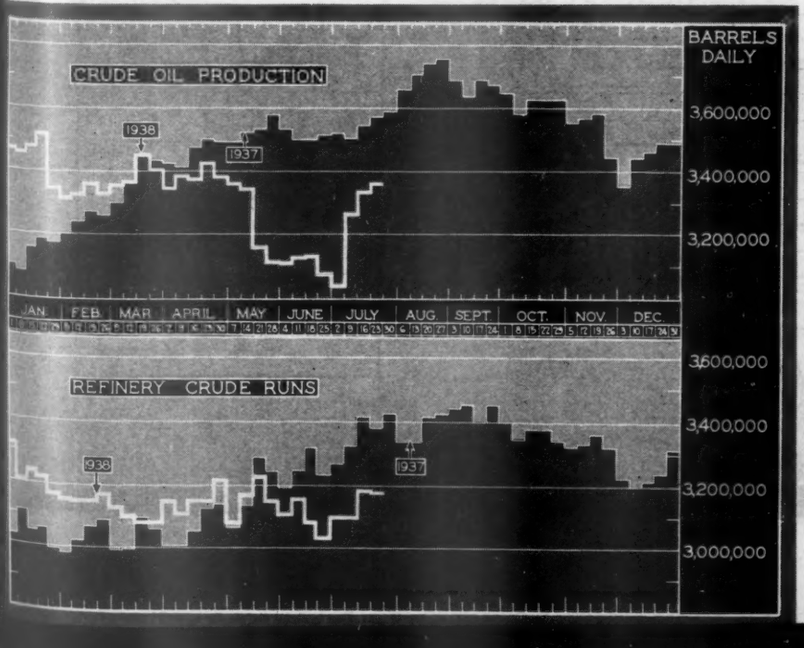
Conditions in fuel oil markets over the past few months have been entirely due to the slump in general business which has materially reduced the demand for industrial, marine and other fuels. The increase in stocks is largely accounted for by the gains at Gulf Coast, East Coast, California, and Middle West refineries. More than one-third of the gain has been on the West Coast.

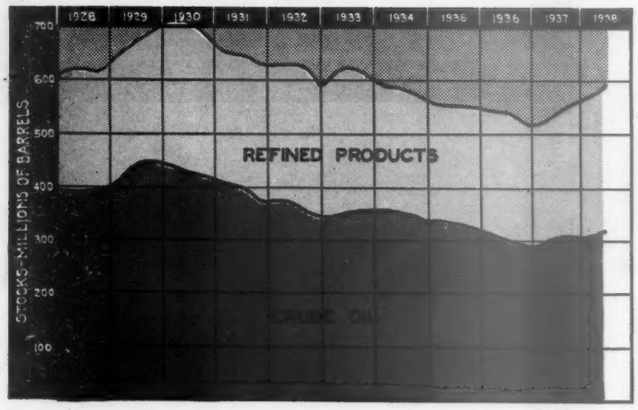
Reports since the first of the month show that industrial purchases of heavy fuels is improving, with a more pronounced recovery in buying over the rest of the year assured should the business recovery continue. The buying is needed in the residual grades, the statistical situation in furnace oils and other overhead gas oils and distillates being less serious. Those in touch with conditions predict that the demand for furnace oil will be greater this season than last.

The gain of 22,450 barrels daily in crude oil production last week places national output at the highest levels since early May when the first large reductions were made effective. Texas, with an increase of 14,000 barrels daily, now has its output in excess of the state allowable and the Bureau of Mines estimated demand. While the latest report shows that the industry as a unit is still drawing on its crude storage, there are areas in which pipe lines are taking more oil than they have a market for. These buyers are hopeful that this situation can be adjusted in August allowables. Reports the first week indicated that August production in most states will be kept at the July levels. Companies anxious to liquidate stocks over next six weeks are offering gasoline freely in several areas and prices at best are only holding their own.

DAILY AVERAGE PRODUCTION FOR WEEK

	July 23 1938	Bur. Mines July est.	July state allowable	July 16 1938
Oklahoma City	104,450	.....	.....	105,025
Fitts	40,525	.....	.....	36,925
Remainder of state	289,300	.....	.....	300,525
Total Oklahoma	434,275	518,400	428,000	442,475
East Texas	438,915	.....	.....	438,525
West Texas	217,994	.....	.....	216,418
North Central Texas	107,243	.....	.....	107,012
Texas Panhandle	74,878	.....	.....	68,989
East Central Texas	102,539	.....	.....	98,976
Gulf Coast Texas	344,885	.....	.....	341,247
Southwest Texas	108,305	.....	.....	107,065
Total Texas	1,394,759	1,360,300	1,359,192	1,378,232
North Louisiana	80,790	.....	.....	80,670
Gulf Coast Louisiana	184,517	.....	.....	183,195
Total Louisiana	265,307	260,600	249,745	263,865
California	663,500	642,300	615,000	670,300
Kansas	157,725	172,300	165,000	153,675
Arkansas	58,205	51,000	.....	57,600
Illinois	54,599	45,500	.....	52,480
Michigan	52,258	56,400	.....	53,791
Eastern fields	94,800	104,200	.....	89,820
New Mexico	101,590	112,900	.....	101,570
Rocky Mountain area	72,360	74,200	.....	63,120
Total United States	3,349,378	3,398,100	.....	3,326,928





Consumption & World Oil

By C. O. Willson

Despite the sharpest decline in general business ever known, the petroleum industry in the United States gave an exceptionally good account of itself in the first six months of 1938 and entered the second lap of the year with most of its operations on a favorable basis.

While most other industries saw the demand for their products drop from 25 to 50 per cent, the oil business in this country held 95 per cent of its domestic markets and expanded its export sales so that total demand was practically the same as that of the record-breaking first half-year of 1937. The total demand for gasoline—the industry's principal product—ran 3 per cent ahead of the same period last year.

The industry, acting voluntarily and in cooperation with the state conservation bodies, removed the threat brought about by a leveling off in demand and a continued high rate of production and over the last 60 days of the half-year materially improved its statistical situation.

The record of the industry outside the United States was impressive. While it was expedient to reduce production in this country to bring about the needed balance in supply and demand, including the liquidation of stocks, petroleum supplies in other countries, considered as a unit, were expanded. These additional supplies were absorbed and foreign buyers found it necessary to increase their purchases in this country to approximately 530,000 barrels daily, a gain of more than 25 per cent over the first half of 1937.

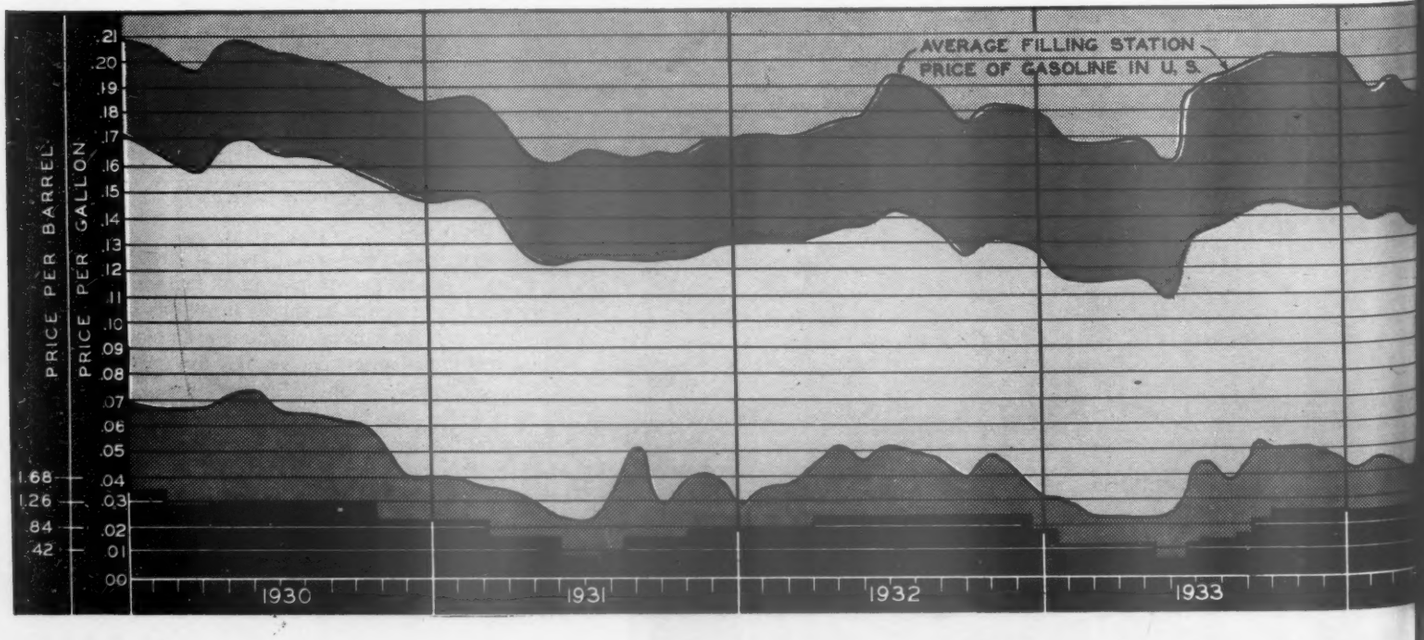
These and other data covering the first half-year's operations, which are summarized in detail in articles appearing in this Semi-Annual Number, are the basis for optimistic predictions regarding developments over the remaining five months of this year at this time. It seems reasonable to conclude that with some improvement in business conditions in the United States, world oil demands will pass the peak year of 1937.

Due to enlarged markets, crude oil production probably will continue to expand outside this country, according to those in close touch with conditions. Continued restrictions will be necessary in this country to liquidate the excess accumulations of last year and early this year in both crude oil and refinery products. However, the actual demand for petroleum in this country will run ahead of the first six months, the amount of the increase depending on the extent of the general business recovery now under way.

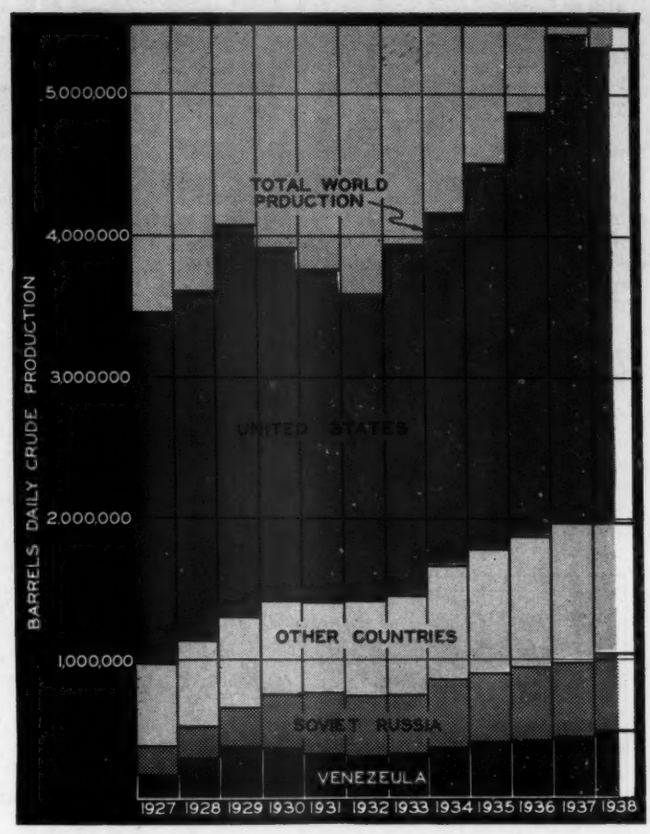
Supplies

World crude oil production in the first six months, which totaled 977,344,486 barrels, was within less than 1 per cent of the record production for the corresponding period in 1937. A decrease of 122,000 barrels daily in the United States was partly offset by an increase of 77,600 barrels daily in other countries so that the total decrease of the entire world was only 44,400 barrels daily, or .8 per cent. Crude oil output in the United States totaled 597,051,486 barrels.

Countries showing gains of more than 1,000,000 barrels for the six months were Venezuela, Iran, U.S.S.R., Canada, Dutch East Indies and Trinidad ranking in the order named, with a total increase for the six areas of more than 20,000,000 barrels. All six areas apparently will establish new yearly records in crude oil production in 1938.



Upturn Aids Conditions



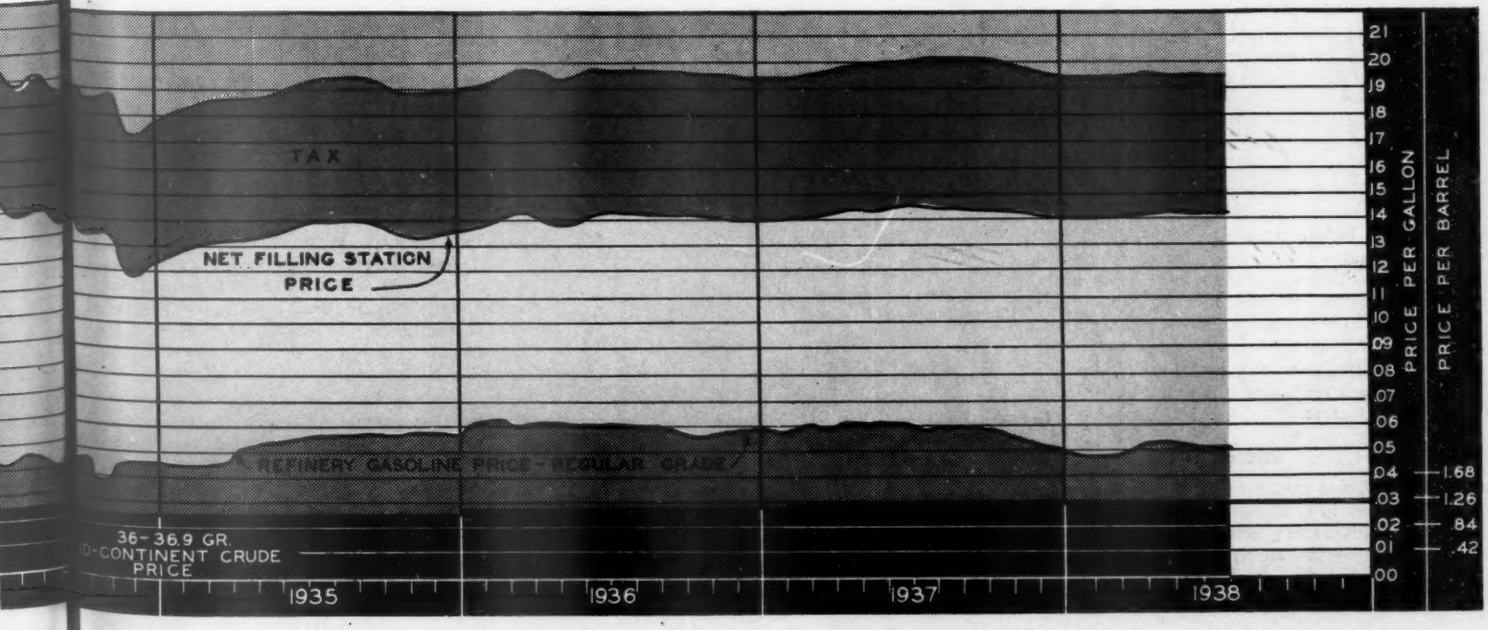
Before the year is over Venezuela's production will reflect further the increasing importance of new fields in eastern Venezuela, said by many to have larger potentialities than the prolific Lake Maracaibo area. Important new discoveries have been made in Iran (Persia) since the first of the year, and production of part of the older producing fields has been expanded. The U.S.S.R. appears to be headed toward higher production from its large reserves after a period of several years in which growth was slow. Trinidad, the largest oil-producing area of the British Empire, increased its production nearly 15 per cent, and several operators are carrying on an active exploratory campaign to enlarge its present known reserves. Canada showed the largest percentage gain due to the greater output of Turner Valley.

Among the few countries outside the United States showing decreases Rumania and Mexico are the most important. The decline in Rumania is largely a reflection of governmental interference and excessive taxes, a condition that has become more and more critical in recent years. Before expropriation on March 18, Mexico's production was running ahead of any other period in several years. With governmental operation, output has dropped to about 50 per cent of its previous volume. Recently its virtual withdrawal from world markets has resulted in increased outlets for several other countries. Normally Mexico exports approximately 50 per cent of a production which under private operation was averaging about 140,000 barrels daily. At present its production is said to be only slightly in excess of its domestic requirements.

Demand

In the United States the domestic demand for petroleum products, based on Bureau of Mines reports for the first five months, is running about 5 per cent under the first half of 1937. This decline is largely due to the lessened demand for the heavy fuel oils, the residual product of refinery operations. The demand for these oils, which constitute about 28 per cent of the average barrel of crude oil in this country, was 16 per cent under the same period in 1937. The decline is a reflection of reduced purchases by industries, railways, marine trade and other large consumers, a condition brought about by the business slump. Stocks of this product have accumulated rapidly in recent months and are now the highest in several years. Domestic demand for lubricants and wax is also running behind last year's due to reduced industrial requirements.

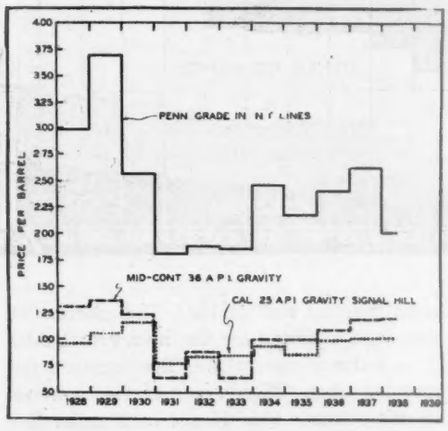
Domestic gasoline demand, according to the latest available reports, showed a small gain, with a larger increase in



kerosene, and only a small decline in distillate and gas oils.

The 28 per cent gain in exports was in the nature of lifesaver to producers and refiners. Crude oil exports were nearly 50 per cent ahead of any previous year with gasoline exports showing an increase of 38 per cent. Exports of kerosene, distillate, and gas oils were also higher, with losses in exports of lubricating oils and wax. Due to these exports, total demand for all products the first five months of this year was 99.7 per cent of the record sales recorded for the first half of 1937.

The 122,000-bbl. daily gain in exports from the United States and the increased foreign production coupled with import data are the basis for the conclusion that consumption of petroleum products outside this country was greater than in the same period of any previous year. Consumption data comparable to those issued regularly here are not available over a large part of the world. Estimates have to be based largely on com-


PENN GRADE IN N Y LINES
MID-CONT 36 A P I GRAVITY
CAL 25 API GRAVITY SIGNAL HILL
PRICE PER BARREL
1928 1929 1930 1931 1932 1933 1934 1935 1936 1937 1938

Pennsylvania Grade was the only crude oil to show a substantial price decline the first half year

parative imports of petroleum products. In countries which have little or no production of their own these import figures give a fairly accurate check on actual consumption.

Great Britain

For the first four months of this year petroleum imports into Great Britain, the second largest oil market in the entire world, were nearly 15 per cent ahead of 1937, when demand exceeded any previous year's. Despite an increased production of substitutes, Germany is consuming more petroleum than ever before. Consumption is increasing in France, Netherlands, U.S.S.R., and several other European countries. Most of the South American markets are expanding and Canada's consumption of gasoline is running ahead of last year's. Those who have made a study of these foreign markets explain that in most cases the countries are just starting to realize the need for petroleum products in contrast with conditions in the United States, where petroleum requirements presumably are nearer the saturation point. It is said that due to this fact the foreign markets as regards demand are less sensitive to general business conditions and have continued to expand this year despite many unfavorable factors.

Prices

As in 1937 and 1936, prices for petroleum products the first half of 1938 were comparatively stable. The outstanding exception was the drop of approximately $1 per barrel in the premium Pennsylvania Grade crude oils produced in Pennsylvania, West Virginia and part of Ohio. This decline followed a collapse in the markets for lubricating oils, particularly the Pennsylvania grades. This was brought about by a high rate of production, which was not curtailed last fall when the demand for all lubricants began to taper off, due largely to the lessened demand from industry. All domestic and foreign lubricating oils suffered due to this development and sustained improvement was not under way as the half-year closed.

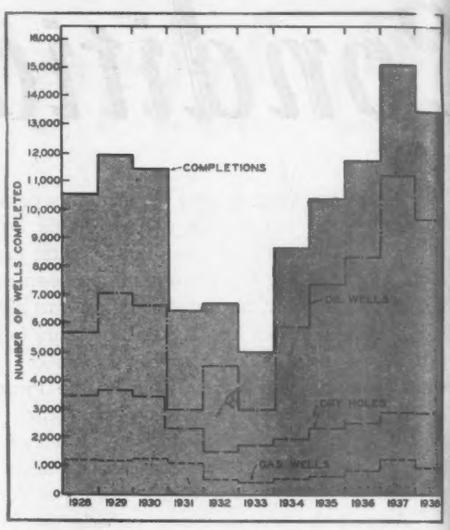
Mid-Continent and California crude markets held. The general level of Mid-Continent and Gulf Coast crude prices has not been changed since the advance in early February, 1936. Outside this country the only changes reported were in contracts which have as their base the open market for fuel oils. The enlarged production and limited outlets in the south Illinois Basin brought minor price reductions in Illinois and Kentucky.

In refinery markets the principal changes were in the heavy fuels and gasoline. The overproduction previously explained brought a reduction in Bunker C fuel at the Atlantic Seaboard points from a high of $1.35 per barrel in 1937 to a low of 95 cents effective in June, 1938.

Fuel oil prices in all refining areas have declined over the past nine months.

While prices partly recovered in June, in several domestic and foreign refining markets, average refinery gasoline quotations generally were lower the first half of this year. At the same time average gasoline retail prices in 50 representative cities in the United States showed little change.

The fact that crude prices were unchanged in the face of price declines for some of the refinery products probably was the most significant price development of the half-year. This situation can best be shown by reference to a typical refinery operation in Oklahoma.



Drilling operations for first half of 1938 compared with same period of previous years

Assuming yields of 55 per cent gasoline, 10 per cent kerosene, 10 per cent U.G.I. gas oil, 20 per residual fuel oil and 5 per cent plant loss, the revenue derived from this refinery operation was $1.62 per barrel of crude oil refined in the first half of this year. The prices used are the average weekly quotations for the products in Oklahoma as shown in the price tables of this issue. For the same period last year, the average revenue was $1.87. With crude costs the same ($1.20 per barrel for 36° gravity crude oil) this means that the revenues this year decreased 25 cents per barrel of crude refined. For further comparison, the refinery revenue with this type of operation in 1936 was $1.79 per barrel, with $1.10 per barrel for crude oil; and $1.54 per barrel, with $1 crude oil in 1935. The refinery margin—the difference between crude oil prices and refinery revenue—which must cover transportation and plant costs, plus any profits with this type operation, were as follows: First half of 1938, 40 cents; first half of 1937, 67 cents; 1936, 69 cents; 1935, 54 cents.

This exceptionally narrow margin for the Mid-Continent refiner threatened the stability of Mid-Continent crude markets several times during the six months.

MODERN OIL REFINING

Airplane view of the Continental Oil Co. Ponca City, Okla., refinery showing 26,000-bbl. plant, 10,000,000-bbl. storage, reservoir supplying 43,000,000 gallons of condenser water daily, athletic field and five-story administration building. This site 20 years ago was part of the Oklahoma prairie

First Federal Proceeding Begun Under the Natural Gas Act

WASHINGTON, D. C.—Instituting its first formal proceeding under the Natural Gas Act, the Federal Power Commission, Acting Chairman Clyde L. Seavey announced, has served notice on the Hope Natural Gas Co. to file within 30 days its answer to the complaint of the city of Cleveland, Ohio, that the price charged by the Hope company to the East Ohio Gas Co., an alleged affiliate, for natural gas for resale to Cleveland and other consumers is excessive, unjust, unreasonable, and greatly in excess of the price charged to nonaffiliated companies and to certain favored industrial consumers in Ohio, and further, is unduly discriminatory between customers and between classes.

This action is taken under Section 13 of the Natural Gas Act, which provides that "any state, municipality, or state commission complaining of anything done or omitted to be done by any natural gas company in contravention of the provisions of this act may apply to the commission by petition, which shall briefly state the facts, whereupon a statement of the complaint thus made shall be forwarded by the commission to such natural gas company, which shall be called upon to satisfy the complaint or to answer the same in writing within a reasonable time to be specified by the commission."

Section 50.23 of the commission's provisional rules and regulations for the administration of the Natural Gas Act provides that answers to formal complaints must be filed with the commission within 30 days after the complaint is served, unless the period is shortened or extended by the commission, and that "all answers should be under oath and so drawn as fully and completely to advise the parties and the commission as to the nature of the defense, and should admit or deny, specifically, and in detail, each material allegation of the pleading answered." "Any defendant failing to file answer will be deemed in default," this rule states, "and issue as to such defendant will be thereby joined."

The city of Cleveland in its complaint and petition filed with the Federal Power Commission, sets forth, among other allegations, that:

"The price charged by Hope to East Ohio for natural gas for resale to domestic, commercial and small industrial consumers in Cleveland and elsewhere is excessive, unjust, unreasonable, greatly in excess of the price charged by Hope to nonaffiliated companies at wholesale for resale to domestic, commercial, and small industrial consumers, and greatly in excess of the price charged by Hope to East Ohio for resale to certain industrial consumers in Ohio, and therefore is further unduly discriminatory between customers and between classes of service."

SPARKS FROM THE NEWS

TREMENDOUS POSSIBILITIES

Two wells in a churchyard at Allentown, N. Y., have placed the church on a sound financial basis. This suggests the possibilities of a wildcat test on the White House lawn.

UNPRECEDENTED

Minnesota does not want the unscrupulous oil promoter. Its own reports show the long chance taken by those who attempt to find oil in that state.

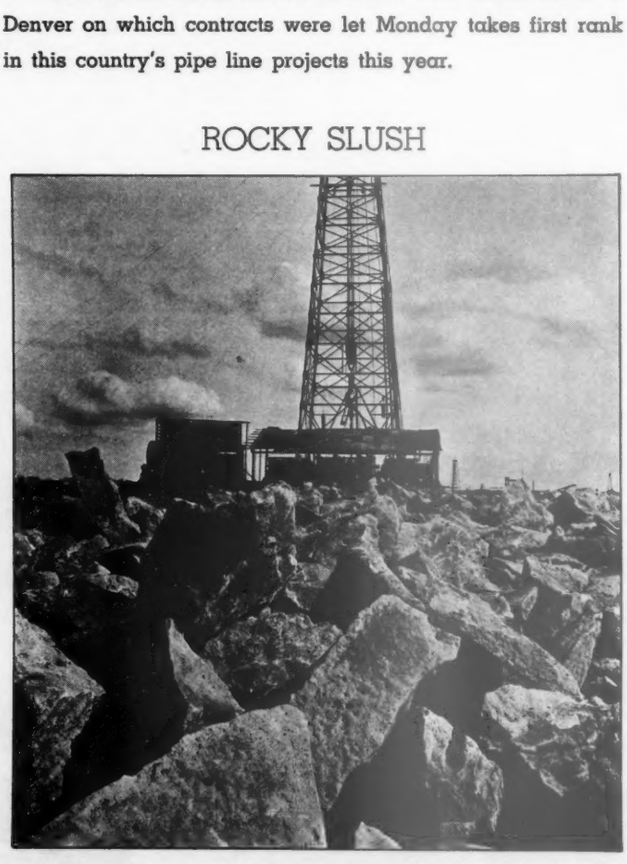
SURE SIGN

The gasoline price wars reported at several points according to one observer are a sure sign that general business conditions are improving.

FIRST PLACE

The two-million-dollar, 232-mile line from Lance Creek to Denver on which contracts were let Monday takes first rank in this country's pipe line projects this year.

ROCKY SLUSH



Tons of rocks had to be blasted to provide for slushpit for this well in the Hittle field of Cowley County, Kansas

REPEAT THE JOB

Political upsets in the Texas and Oklahoma primaries may mean that the oil industry again will have to educate those in authority regarding the fundamentals of its business.

IN BAD TIMES

The half-year reports of this issue again emphasize the strong position of the oil industry in bad times as well as good.

HOT ARGUMENT

The men you saw in the midst of a heated argument probably were two usually mild-mannered geologists arguing as to the merits of soil analyses in the search for new oil areas.

VENEZUELA LEADS

Venezuela so far has the largest quantity increase in crude oil production this year, with Canada showing the largest percentage gain.

SIMPLE

A civic organization wants a highway through the heart of the South Houston field, explaining that the oil wells can be moved to one side of the new artery.

GOOD NEWS

Good news for both the oil and automobile industries is contained in the report showing a rapid reduction of stocks in used-car lots.

LOSING CASTE

Developments since Judge Stone's ruling last week have led to reports that Madison is losing caste with the Department of Justice as its investigating center for the oil industry.

CLOSEUP

Shreveport operators can look from their office windows now and see a producing well, a wildcat having been completed on the edge of the city.

GOOD NEIGHBOR

Many will consider the proposal to lower the import tax on crude oil through a trade agreement with Venezuela as the "good neighbor policy" in reverse.

Southern Minnesota Geology Studied for Oil Indications

By GEORGE A. THIEL
Geologist, Minnesota Geological Survey

In drilling shallow wells for water in the region of Bricelyn and Kiester in Faribault County, Minnesota, gas is sometimes found under sufficient pressure to lift mud and water out of the holes. Such puffs of gas often cause hopes of commercial production. In view of the fact that numerous inquiries have been received regarding the possibility of commercial oil and gas in the region, this abstract is presented to show the subsurface structure of the area. Most of the data shown on the accompanying map (Figure 1) were compiled from various geologic maps and bulletins published by state and federal surveys.* These data were supplemented and brought up to date by a recent field investigation by the writer. A geologic map of Minnesota published by the Minnesota Geological Survey in 1932 is available at the office of the University Press, University of Minnesota, Minneapolis.

Surface Features

The area is for the most part level and plateau-like. There are, however, several conspicuous morainic belts that culminate in the Kiester Hills which stand several hundred feet above the plains and reach an elevation of 1,450 feet above sea-level. The Kiester Hills and their extension stretch across Faribault County with a northwest-southeast trend for a distance of 25 miles. They are marked by very irregular rolling surfaces.

Geologic Succession

The following rock formations are known to occur in the region:

Formations—	Max. thickness (feet)
Recent, river gravel and flood plain sediments	75
Pleistocene, glacial drift	350
Cretaceous (not definitely known to occur).	
Paleozoic:	
Devonian—Cedar Valley limestone	200
Ordovician:	
Maquoketa shale	75
Galena limestone	200
Decorah shale	65
Platteville limestone	25
St. Peter sandstone	110
Oneota-Shakopee dolomite	275
Cambrian:	
Jordan sandstone	100
St. Lawrence shales and dolomite	150
Franconia sandstone	100
Dresbach sandstones and shales	175
Proterozoic (pre-Cambrian):	
Keweenawan sandstones and shales	1,000
Granite (age not definitely known)	(?)

The pre-Cambrian is made up largely of igneous and metamorphic rocks. A thick series of red sandstones and shales rest unconformably over the older crystalline rocks. They are nonfossiliferous and are generally considered of nonmarine origin. Keweenawan sediments are nonpetroliferous and, therefore, it does not seem worth while to discuss them from the standpoint of possible petroleum content. Even these rocks, however, have been drilled for oil and money vainly squandered on dry holes. A well near Rochester penetrated more than 2,000 feet of Keweenawan sediment, and another near Rosemont has entered the formation to a depth of nearly 1,000 feet. The log of a deep well at Blue Earth shows approximately 200 feet of similar sediments. To the east of Freeborn County the red Keweenawan sediments wedge out against the granite, so that toward the Mississippi River Valley the Cambrian sandstones overlap the Keweenawan and rest unconformably on the pre-Cambrian granites.

The Cambrian is represented by the upper division only. It consists of sandstones and shale with glauconitic beds and dolomitic layers. Most of the sandstones are poorly cemented. They are of medium texture and very porous. They are filled with artesian water and furnish the source of water for the deep wells that supply the industrial plants at Albert Lea, Blue Earth, and Austin. No organic material is known to exist in these sediments that might furnish hydrocarbons in the form of either oil or gas.

The Lower Ordovician (Oneota-Shakopee) is composed of massive arenaceous and cherty dolomite. Locally it has numerous secondary solution cavities, many of which are filled with crystals of calcite or of quartz. The formation is evenly bedded and marked by rectangular jointing.

The St. Peter sandstone consists of a medium-textured white quartz sand that is poorly cemented. Where its upper surface has not been eroded, it

*Meinzer, E. O., The Geology and Water Supply of Southern Minnesota. Water Supply Paper 256, U. S. Geol. Survey.
Emmons and others, Geologic Map of Minnesota, Minnesota Geological Survey, 1932.

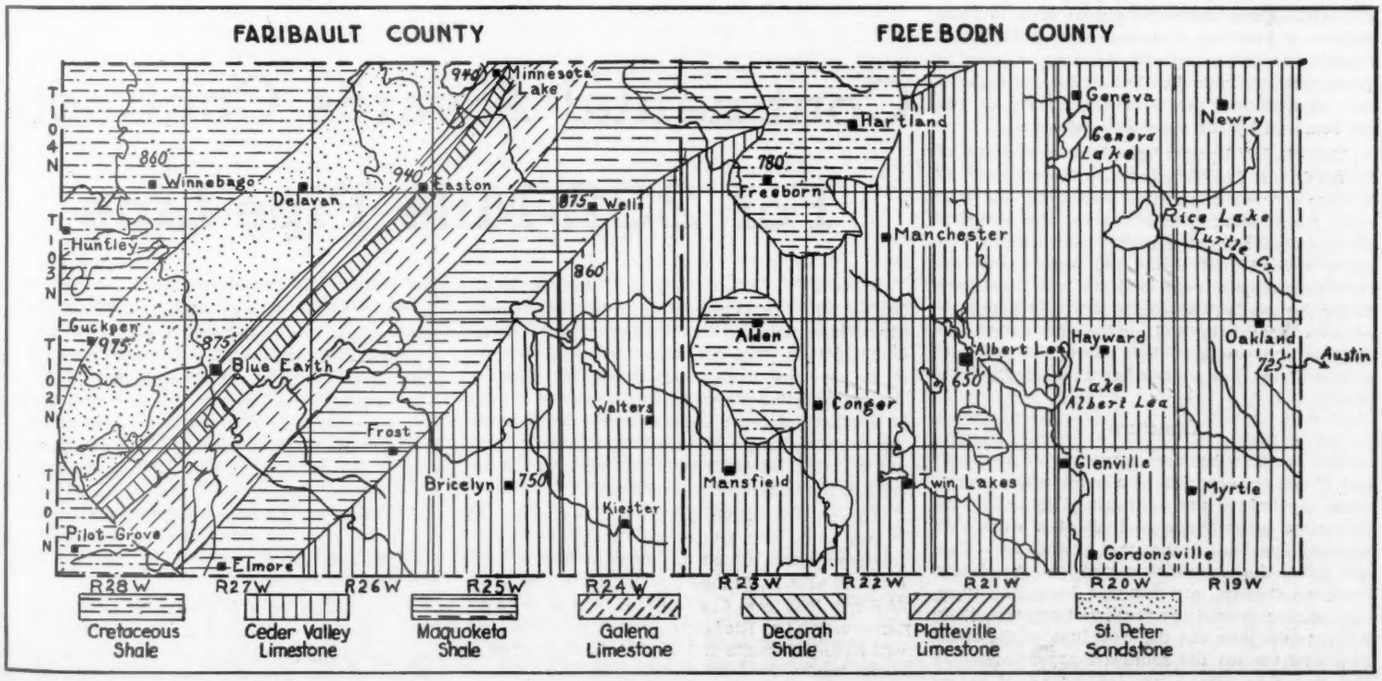


Fig. 1—Geologic map of Faribault and Freeborn counties, Minnesota. The figures 975', 650', etc., indicate elevation above sea level of top of St. Peter sandstone

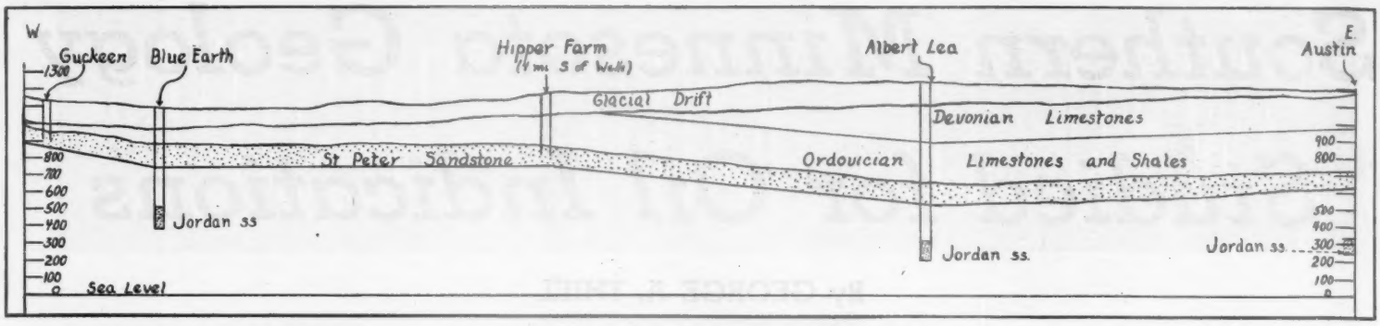


Fig. 2—Generalized geologic cross section east-west across Faribault and Freeborn counties, Minnesota, and eastward to Austin in Mower County. Data derived from well logs

varies from 75 feet to 110 feet in thickness. Because of the absence of cementing material, the St. Peter is an ideal reservoir rock and, where covered by an impervious cap, it serves as an important source of artesian water.

The Ordovician strata above the St. Peter consist of blue to buff dolomitic limestones and blue to green shales which correlate in general with the Trenton formation of Ohio and Indiana. Locally, they are abundantly fossiliferous and some thin layers are high in organic matter.

The Devonian rocks show considerable variation. The lower portions consist of buff to gray, impure limestone, interbedded with which are layers of brown shale. The upper portion is mainly light brown dolomite which becomes progressively more and more cavernous toward the surface. White residual clays occupy many of these caverns.

The Cretaceous sediments were deposited unconformably over the Paleozoic rock after an exceedingly long erosion interval. The geographic extent of Cretaceous rocks in Minnesota is not definitely known. Preglacial and post-Cretaceous erosion undoubtedly removed them over large areas. Over much of the state they now exist as thin scattered remnants of no consequence in the present consideration. Where definitely recognized in western Minnesota, the Cretaceous consists of blue clay or shale overlying a white sand. The white clays under the glacial drift in Faribault and Freeborn counties contain Devonian fossils. Such patches of clay, formerly mapped as Cretaceous, are undoubtedly remnants of residual clay formed over the Devonian limestones and not removed by the Pleistocene glaciers.

The glacial deposits are thick over most of Faribault and Freeborn counties. They consist of a heterogeneous mixture of blue, gray, and buff clays that contain lenses, layers, and irregular pockets of sand and gravel. These deposits represent several drift sheets and consequently ancient forests, peat bogs, and old lake beds were buried by the late Wisconsin drift. Such organic remains, sealed in and under the impervious clays of the youngest drift sheet, are the chief source of the gas pockets struck in drilling for water.

Structure

The major subsurface structure of Faribault and Freeborn counties is a very gentle monoclinal dip toward the southeast (Figure 2). This monocline is on the west limb of a wide, flat, pitching, synclinal flexure that extends from Cannon Falls, Minn., southwestward through eastern Freeborn County, into northern Iowa. The structure pitches toward the southwest approximately 2 feet to the mile and the west limb of the structure dips toward the southeast approximately 8 feet per mile. There are indications of minor folds within this broad syncline, but not sufficient data are available to outline them in detail.

The Kiester Hills have been reported as a structural high with several hundred feet of closure. Such reports are based on "wishful thinking" and not on available geologic facts. A number of deep wells drilled for water in the hills indicate that the glacial drift is from 275 feet to 350 feet thick, whereas to the east and to the west of the hills, it is from 90 to 150 feet thick. Wells that penetrate bed rock in the hills encounter brown Devonian limestone under the hills as well as under the level land eastward toward Albert Lea. There is no geologic evidence available at this time that would indicate a structural high under the Kiester Hills.

Oil and Gas Possibilities

Two sandstone formations, the St. Peter and the Jordan, have a porosity admirably suited to serve as reservoir rocks. However, the St. Peter is exposed at the surface over large areas on both limbs of the major structure. Where covered, it has been penetrated by numerous wells that tap it for the fresh artesian water it is known to contain. Its thickest cover is less than 1,000 feet. The Jordan sandstone is of Cambrian age. It is the uppermost formation of a thick series of sandstones and shales. There are no rocks below it that might furnish hydrocarbons in the form of either oil or gas.

The Ordovician strata above the St. Peter are abundantly fossiliferous, and contain some organic residues, but, as far as explored, no trace of oil or gas. These rocks are of approximately the same age as the oil-and-gas-bearing Trenton formation of Ohio and Indiana. There, however, they are deeply buried, whereas in southern Minnesota these formations are thin, and the beds lie near the surface where they are extensively dissected by erosion. Their thickest cover in the region of the Kiester Hills, is no more than several hundred feet of Devonian limestones.

The glacial drift has furnished most of the "indications" of gas in the Bricelyn-Kiester region. Numerous shallow water wells have encountered pockets of gas that "bounce the tools" or occasionally throw out quantities of mud and other rock debris. These "puffs" are of short duration, and further drilling does not increase the flow of gas. The highest gas pressure definitely recorded is 22 pounds. Such pressure subsides in a few hours, but small quantities of gas may issue from the wells for several years. No gas has been encountered in holes drilled into bed rock. Some has been reported in the channels of the upper part of the Devonian limestone. It undoubtedly was derived from the drift also.

Since the only "indications" of oil or gas are in the glacial drift, the probabilities of commercial productions are so remote that it is not practical to give the region serious consideration.

Continental Awards Contracts For 232-Mile Pipe Line

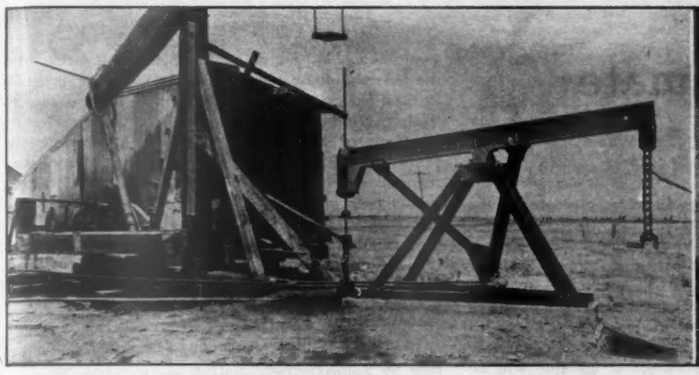
PONCA CITY, Okla., July 25.—Plans for a $2,000,000 pipe line construction project were completed here today, with announcement by Continental Oil Co. that contracts had been awarded on its pipe line from Lance Creek, Wyoming, to Denver, and that contracts will be signed shortly on another line from Lance Creek to its Glenrock, Wyoming, refinery. Continental is a major oil producer in the Lance Creek field, and owns refineries at both Denver and Glenrock.

Lance Creek-Denver project will be constructed in two units, contract for the 136 miles of 8-inch line from Lance Creek to Cheyenne having been awarded to S. D. Bechtel Co., and for the 96 miles of 6-inch line from Cheyenne to Denver to Osage Construction Co. The Lance Creek-Glenrock project will include 50 miles of 4-inch line and 15 miles of 6-inch line.

In addition to pump stations and storage terminals, the project will include a 232-mile telephone line which will run parallel to the pipe line.

"This is the largest pipe line construction project announced this year," said Dan Moran, president of Continental Oil Co., "and it should be a boon to employment, railroad shipments and business in general throughout the Rocky Mountain area. Approximately $350,000 will be spent for labor, and local labor will be employed. More than 15,000 tons of pipe will be used in building these lines, which means that western railroads will handle about 430 freight carloads, or the equivalent of six full train loads of pipe. Besides, there will be another train load of tank steel, pumps, and other operating equipment."

Construction work is scheduled to start about August 5, and it is expected to take more than three months to finish the job. Work will begin at Lance Creek and Cheyenne, and both contractors on the Lance Creek-Denver units will build toward Denver.



A stripper in the Breckenridge field of West Central Texas. This operator has faith enough in the future of his property to replace the old rig with a modern jack on backside crank assembly

Typical stripper well in the Cross Plains field of West Central Texas' great stripper area. Wells in this field are recovering as much or more oil in six days as they produced in seven

Effects of Sunday Shutdowns on Stripper Wells in Texas

By MITCHELL TUCKER

FORT WORTH, Tex.—The effect of Sunday shutdowns on the stripper fields of Texas has been the subject of much study and discussion during the past six months. Contrary to some of the opinions advanced at the inception of the emergency proration holidays, an increasing number of operators are coming to recognize beneficial results from the practice. In fact, many of the smaller operators in the stripper districts have decided to continue the one-day shutdown even should the railroad commission lift the proration ban in the future.

Those who have kept close production figures before and after January 23, 1937, in the stripper fields of Texas report that in a great majority of cases no production has been lost, and in many cases there has been an actual production increase. It was expected that the production holidays would serve to act as a restriction on the production of the stripper fields, which have been submarginal for years. As a matter of fact, in many cases more production has actually been pumped in six days than had heretofore been pumped in seven days, to say nothing of the operating savings on fuel and equipment.

This increased production during shorter operating periods is probably somewhat similar in principle to the theories advanced for justification of intermittent pumping, or for the use of slower pumping cycles, or for the use of "Tom Thumb" working barrels. This situation, of course, is true only in fields which do not make excessive quantities of water with the oil, or those which have not been operated under the influence of high vacuum.

If nothing more, the discovery that no production would be lost in the stripper wells by a one-day shutdown has been valuable to the smaller operators in that they have been prompted to give closer study to their operating practices. For the first time, detailed production records are being kept in certain areas, fluid levels are being checked periodically, and adjustments in tubing size and position as well as changes in pump sizes, are being considered. Often it is difficult to figure a payout on any sizable investment, but these experiments are usually handled without operating loss.

In some of the older fields some of the field men have set rows of old second-hand oil drums as testing batteries, and homemade manifolds made to permit the testing of individual wells without expense or loss of production.

In addition to the recovery of the same quantity or more oil per week which includes a proration holiday, operating savings are apparent in less down time, and a reduction in the stress and wear on surface and subsurface pumping equipment. Furthermore, the majority of stripper wells are handled by part-time pumpers, or by lease men who usually have more than they can properly handle; under the one-day shutdown plan, an opportunity is given for check-ups and minor repairs which was not possible heretofore.

The maximum production on a pumping well can be maintained at a minimum cost only when the pump is operating in a manner and on a schedule which will obtain the highest volumetric efficiency for the operating period.

The one-day shutdown program differs considerably from the plan of intermittent pumping as applied to many stripper fields. In fact, several fields which have been pumped intermittently throughout each 24-hour period for years have shown beneficial results from the full-day interruption.

Another means of achieving somewhat the same result has been to slow down the pumping cycle, or install smaller working barrels. It has always been considered good operating practice to pump a well with the least number of strokes that will secure the maximum production. The results of such a practice are well known: less overall stress will be placed on the pumping equipment, less agitation of the oil will result, and production will be taken more uniformly from the well bore. Such practices also help to prevent gas-locking or pounding down in certain instances.

The principle behind part-time pumping of small volume wells is that fluid is liberated from the reservoir formation only when the well pressure is less than the formation pressure. As the differential pressure increases the volume of fluid entering the well bore also increases. During the shutdown period, the differential pressure between the formation and the well varies from the maximum to a very low differential, because the rising fluid level tends to equalize the bottom-hole and reservoir pressures. In favor of smaller size working barrels, it has been pointed out that less fluid is liberated from the formation after an extended shutdown as the differential pressure becomes smaller and smaller with the rise in fluid level.

Undoubtedly there are wells which would respond more satisfactorily to an intermittent pumping schedule throughout each 24-hour period, rather than one full 24-hour shutdown in each seven days. Individual well testing will quickly classify these different types, and in some few cases such accurate tests are being made to determine future operating practice. The difference between these two types of stripper wells is probably due to sand thicknesses, manner of well completion, and type of control under which the reservoir is producing. Those wells which respond better to the full-day shutdown are those which have sufficient bottom-hole pressure and sand thickness to build up an increased fluid level during the interruption of pumping so that additional oil will be in the hole to increase the volumetric efficiency for the following three or four days. After that time, when the head has been lowered, a yield somewhat comparable to that obtained previously will be noted. The increased oil pumped during the first three or four days following a shutdown often is more than enough to compensate for the loss during the shutdown.

In most cases a somewhat different result was noted during the seven weeks in which a Saturday-Sunday shutdown was invoked. Usually it was found it was impossible to recover the full seven-day yield in five days, indicating that an equilibrium must have been reached during the two-day shutdown period which prevented building of a higher fluid level. In some instances the full seven-day production was obtained.

Bureau of Mines Crude Estimate 40,000 Barrels Above July

The daily average supply of domestic crude oil estimated by the Bureau of Mines to meet the market demand in August, 1938, is 3,438,100 bbls. This is 40,000 bbls. higher than the estimate for July, 1938, 274,500 bbls. (7 per cent) less than the actual daily production for August, 1937, and 6 per cent less than the demand for domestic crude for that month. This decreased demand can be accounted for by the larger estimates for gasoline stock reduction.

Daily average crude oil production and runs to stills during the four weeks, June 4 to July 2, averaged 3,115,000 bbls. and 3,110,000 bbls., respectively. During this period refinable and heavy stocks of crude declined 6,911,000 bbls. However, foreign stocks increased 25,000 bbls., making a total decline of 6,936,000 bbls. for domestic grades of crude oil. The addition of this amount to production gives 3,363,000 bbls. as the apparent daily average demand for domestic crude oil during this period, compared with 3,333,300 bbls. estimated by the bureau for the month of June.

TABLE 1—ESTIMATED DAILY AVERAGE CRUDE OIL DEMAND BY STATES

(As no changes in crude oil stocks are involved in these estimates, they represent demand rather than production.)

State—	Forecast— Aug., 1938	Forecast— July, 1938	Actual production May, 1938
Texas	1,377,800	1,360,300	1,216,500
California	649,300	642,300	688,600
Oklahoma	529,700	518,400	464,100
Louisiana	256,100	260,600	256,600
Kansas	169,300	172,300	153,500
New Mexico	112,300	112,900	93,200
Wyoming	62,200	55,500	48,700
Michigan	60,000	56,400	55,200
Arkansas	53,900	51,000	41,200
Pennsylvania	50,100	52,800	49,000
Illinois	45,800	45,500	46,400
New York	15,500	15,000	14,400
Kentucky	14,500	14,500	14,300
Montana	13,900	13,500	14,200
Ohio	10,000	9,700	9,100
West Virginia	9,900	10,000	10,400
Colorado	5,500	5,200	4,600
Indiana	2,300	2,200	2,500
Total	3,438,100	3,398,100	3,183,000

Motor Fuel

Domestic demand.—The estimate for domestic motor fuel demand for August, 1938, is 50,000,000 bbls., almost 1 per cent higher than the actual demand for August, 1937.

Exports.—Motor fuel exports have been estimated at 4,500,000 bbls., 500,000 bbls. daily higher than the July estimate and 729,000 bbls. higher than the actual exports for August, 1937.

Stocks.—Stocks of finished and unfinished gasoline amounted to 88,147,000 bbls. on May 31. According to statistics of the American Petroleum Institute, these stocks declined 6,963,000 bbls. during June, bringing them to approximately 81,200,000 bbls. as of June 30. The bureau estimates that finished gasoline stocks will decline 6,300,000 bbls. during August. If both the July and August bureau estimates of gasoline stock decrease materialize, stocks of gasoline will be approximately 68,300,000 bbls. on August 31, still 1,500,000 bbls. higher than they were on August 31, 1937.

Gasoline production.—Benzol and "direct" sales and losses of natural gasoline have been estimated as 1,000,000 bbls., making the estimated refinery production of gasoline 47,200,000 bbls. This is distributed among the various districts as follows (thousands of barrels): East Coast, 6,560; Appalachian, 1,630; Indiana-Illinois, 8,310; Oklahoma, 2,650; Kansas-Missouri, 2,550; inland Texas, 3,780; Texas Gulf Coast, 11,920; Louisiana Gulf Coast, 1,500; North Louisiana-Arkansas, 980; Rocky Mountain, 1,160; California, 6,160.

Crude Petroleum

Runs to stills.—Natural gasoline consumption at refineries in August is estimated as 7.2 per cent of the total gasoline production, which amounts to 3,400,000 bbls. The yield of straightrun and cracked gasoline is estimated as 44.2 per cent, compared with 44 per cent estimated for July, 1938, and the actual of 43.18 per cent for August, 1937. The application of the current yield to the estimated straightrun and cracked gasoline production of 43,800,000 bbls. gives refinery crude oil requirements as 99,080,000 bbls., or 3,196,100 bbls. daily.

Foreign crude runs.—Foreign crude runs to stills are estimated at 2,500,000 bbls., 100,000 bbls. more than the July estimate.

Exports, fuel, and losses.—The estimate for crude oil exports has been increased 600,000 bbls. over the July estimate to 7,700,000 bbls., while the estimate for fuel and losses has been lowered 200,000 bbls. from the July estimate to 2,300,000 bbls.

Crude oil demand by states.—The breakdown of the total estimated daily demand for domestic crude oil of 3,438,100 bbls. gives the accompanying market demand by states of origin. As demand may be supplied either from stocks or from new production, contemplated withdrawals from crude oil stocks must be deducted from the bureau's estimate of demand to determine the amount of new crude to be produced.

Mexican Shipment Seized by Netherlands Government

NEW YORK, July 25.—Outside Secretary Hull's note to the Mexican government (see page 62), the most important development of the week regarding Mexican oil properties was seizure of 10,000 tons of Mexican oil on the Swedish motor tanker Lundgren in Hansweert harbor by Netherlands officials at request of Batavian Import Co., a subsidiary of Royal Dutch-Shell. The Batavian company is a distributing unit for Royal Dutch-Shell which owns a large share interest in Mexican Eagle Oil Co. Seizure in the Netherlands port was based on the contention that the oil still belongs to the Mexican Eagle company whose properties were expropriated by Mexico without acceptable compensation. The seized tanker sailed with the tanker Mariana from Mexico late in June under sealed orders with oil believed destined for Germany. The shipments, it was believed, were in connection with an agreement by the New York brokerage firm of W. R. Davis & Co., with the Mexican government for the purchase of $10,000,000 worth of oil.

From Mexico, it was reported last week that six tankers loaded with Mexican petroleum had sailed from Tampico and Manititlan so far this month.

In London, the involved suit for damages against William R. Davis of New York, who recently completed a deal for supplying quantities of Mexican oil to Germany and Sweden, appears likely to be drawn out over an extensive period. The New York oil negotiator was excused July 18 from attending further sessions of the trial. Making application to Justice Lewis on the fourteenth day of the suit brought by Carl Frederick Glad and Antieselskabet Gica on the grounds of alleged conspiracy and fraud, H. U. Willink, Mr. Davis' attorney, said it was impossible for his client to stay in London indefinitely. Testimony continued in the suit.

Los Angeles Chosen for 1939 Asphalt Institute Meeting

NEW YORK.—For the first time in its history, the asphalt industry will hold its meeting on the west coast, Los Angeles being selected for the twelfth National Asphalt Conference during the week of February 20, 1939. The meeting will be under the auspices of the Asphalt Institute with J. E. Pennybacker, managing director, general chairman and Daniel B. Miller, managing engineer of the Pacific Coast Division, co-chairman.

This conference, open to all interested, will be attended by highway officials, engineers and technologists from this and foreign countries and is timed to gear the asphalt industry to complete cooperation with the current billion-dollar-a-year road-building program in counties, cities and states.

J. S. Helm, of Standard Oil Co. of New Jersey, president of the Asphalt Institute, in opening the conference, will outline world progress in highways as reported to the eighth International Road Congress, just completed at the Hague. Mr. Helm attended as a delegate from the United States government.

Wisconsin Inspection Rates Reduced 25 Per Cent

MADISON, Wis.—Reduction of state oil inspection fees by approximately $60,000 a year has been announced by the oil inspection division of the state department of inspection, effective August 1. The rate represents a reduction of 25 per cent from the 2 cents a barrel fee in effect for eight years and previously 2.5 cents. This is said to be the second lowest rate in the country. Under the 2-cent rate the inspection division accumulated a surplus of $60,000 last year, which will be turned over to the state treasury. A total of 11,976,000 bbls. were inspected.

Wyoming I.P.A.A. Meeting Has Been Postponed

E. J. Sullivan, director, announces that the annual meeting of the Wyoming division of the I.P.A.A., which had been set for July 26, has been postponed until later in the summer owing to the necessity for Russell B. Brown, counsel for the general association, preparing for the hearings at Washington August 15 on the proposed revision of the treaty with Venezuela which may involve the excise tax on Venezuelan oil entering this country.

British American Oil Co. To Move Montana Crude

COUTTS, Alberta.—British American Oil Co. is preparing to move about 600 cars of Montana crude from storage at Coutts to Calgary and Moose Jaw to blend with Turner Valley crude. The crude was in storage when the company's refinery here shut down. The storage tanks will be utilized later for the new refinery at East Calgary.

Californians Alarmed Over Venezuelan Trade Treaty

LOS ANGELES, Calif.—Rush M. Blodget, executive vice president of the Oil Producers Agency of California, says grave danger to California oil field employment lurks in a pending reciprocal trade agreement with Venezuela. If Venezuela oil is permitted to enter the United States duty free, which is possible if the trade agreement is reached, it will be practically impossible, he says, for producers of California oil, particularly of the lower grades, to compete with the Venezuelan product in the Atlantic market, which will result in the possibility that many California producing areas may be forced into complete shut-downs, with the consequent loss of employment of all field crews now working in those areas.

"Esso" Injunction

ST. LOUIS, Mo.—The United States Circuit Court of Appeals has affirmed a decision by Federal Judge George H. Moore, which permanently enjoined Esso, Inc., a subsidiary of Standard Oil Co. of New Jersey from using the word "Esso" in any of the 14 states comprising the trade territory of Standard Oil Co. of Indiana. Indiana claimed the term "Esso" constituted infringement in that it was similar in sound to the letters 'S. O.," used by the Indiana company.

Suspension Line to Greybull

Connection has been made on the new Wyoming Gas Co. suspension line across the Big Horn River carrying gas to the community of Greybull, Wyo.

The OIL AND GAS JOURNAL

PRODUCING REFINING NATURAL GASOLINE PIPE LINE

Published weekly by The Petroleum Publishing Company at Tulsa, Oklahoma

Strengthens Confidence

The action of Judge Stone in disposing of the first Madison case so far as his court is concerned sustains the position that has been taken by this publication in regard to many of the issues involved.

While he leaves to the higher court the final determination of some of the issues, the position he has taken in regard to several of the contentions, unquestionably in conflict with those of official Washington, is courageously outspoken and does much to strengthen public confidence in our federal judicial system.

In dismissing the cases of ten individuals and in granting new trials to 15 others the court recognizes the unfairness of the attempt by the government to conduct trial by wholesale despite the widely varying positions of the individual defendants.

The judge, who spent several months studying the 12,000 pages of testimony and examining 1,000 exhibits, realized the almost impossible task which confronted the jury and which the jurors solved in a fashion by finding everyone guilty. Apropos of this the court said:

"That the jury was in position to make the complete and critical study of the proof as it applied to each defendant separately is at least doubtful. It has taken the court a considerable time to do it with the aid of the records and briefs.

"There is good reason to believe that certain defendants have not had an adequate separate consideration of their defense, in view of the fact that as to some of them direct evidence of participation was lacking or slight, and the circumstantial evidence viewed as a whole may well have obscured other facts and circumstances shown, in some cases, to be highly suggestive of innocence and in all cases to be considered and weighed."

As to the cases on appeal, the alleged conspiracy is confined to a few companies representing a small fraction of the refining and marketing capacity of the Midwest and Mid-Continent where the supposed price fixing manipulation allegedly took place.

There is also the incongruous situation in which verdicts were rendered and fines assessed against companies despite the fact that the individuals who were supposed to have represented these companies either had the charges against them dismissed or were granted new trials for lack of evidence to convict them.

The industry is content to await the outcome when the issues involved in these convictions are passed upon by the higher court.

The latest developments and the court's comment tend only to emphasize the unfairness of having initiated these cases upon a criminal procedure basis. As the judge said:

"The charge against the defendants lay in a field of economic controversy," and it should have been conducted entirely upon that basis from the beginning.

No jury unfamiliar with the workings of a major industry could possibly grasp the fundamental economic developments which guide the operations of the oil business. Those trends which may appear monopolistic to the uninformed are often the guarantee of competition.

The practices complained of by the government in these cases, regarding which the jury was honestly confused after four months of trial, should have been submitted to the Federal Trade Commission for investigation by trained representatives, and, if the commission found certain practices undesirable, a "cease and desist order" should have been issued which would have been a guide to the industry in its future operations. By this means, followed generally by the Federal Trade Commission in other cases, the full cooperation of the industry with the government would have been assured.

State Department Sends Firm Note to Mexican Government

By HENRY D. RALPH

WASHINGTON, D. C., July 25.—A firm stand by this government against Mexican confiscation of oil properties is foreshadowed by the strong note Secretary Hull delivered to the Mexican Ambassador last week on the subject of payment for American-owned agricultural lands seized by Mexico.

While the note made no direct reference to the oil situation, the inference was clear that a precedent was being laid down with the oil seizure in mind, and it is noteworthy that the State Department did nothing to counteract this inference. The secretary asked that payment of compensation for expropriated agrarian lands be submitted to international arbitration under the general treaty of arbitration of 1929, to which both nations are parties.

A tone of impatience with Mexico ran through the entire note. Secretary Hull referred to the fact that between 1915 and 1927 Mexico expropriated 161 moderate sized farm properties from American citizens and that while these claims were referred to the General Claims Commission, not one of them has been paid. Since 1927, he pointed out, there have been additional seizures of agrarian lands, valued by their former American owners at $10,132,388, but, while the Mexican government has expressed a willingness to make small monthly payments for these properties, it has done nothing toward fixing a valuation nor providing for any payments. In addition to these agrarian expropriations on which arbitration is sought, there have been seizures of large land grants from Americans, nationalization of the railroads, and, finally, expropriation of the major oil companies in Mexico. Without expressly referring to these seizures, the note implied that, if Mexico cannot or will not pay for these relatively small agrarian takings, some of them 20 years ago, there is no basis for hoping that Mexico will make compensation for the oil and other extensive seizures.

Strong Language

Strong language applicable to the oil situation was contained in the note. Secretary Hull said: "The taking of property without compensation is not expropriation. It is confiscation. It is no less confiscation because there may be an expressed intent to pay at some time in the future. If it were permissible for a government to take the private property of the citizens of other countries and pay for it, as and when, in the judgment of that government, its economic circumstances and its local legislation may perhaps permit, the safeguards which the constitutions of most countries and established international law have sought to provide would be illusory."

After saying that Mexico can treat its own nationals as it likes, the Secretary declared: "But we cannot admit that a foreign government may take the property of American nationals in disregard of the rule of compensation under international law. Nor can we admit that any government unilaterally and through its municipal legislation can, as in this instant case, nullify this universally accepted principle of international law, based as it is on reason, equity and justice."

A little lecture on social progress was given to Mexico by Secretary Hull. Noting that Mexico's excuse for seizing foreign property was that it is carrying forward a program of social betterment for the masses of its people, the secretary stated that the same thing is going on in the United States but whenever this government takes any property from citizens or foreigners it makes immediate compensation in cash.

A distinct threat that the much-discussed "good neighbor" policy of the administration may be revised is seen in the statements: "The good neighbor policy can only be based on mutual respect by both governments of the rights of each and of the rights of the citizens of each. . . . The surest way of breaking up the good neighbor policy would be to allow the impression that it permits the disregard of the just rights of the nationals of one country owning property in another country."

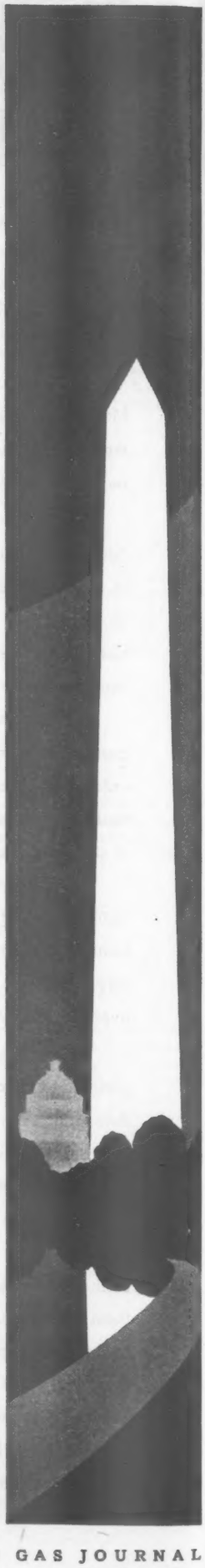
The arbitration requested by this government is necessarily a lengthy procedure, but it is nevertheless a definite method of getting results, and the demand that it be invoked is practically the diplomatic parallel of filing a law suit. The note means that this government has lost patience with Mexico's policy of seizing American property without compensation. In short, it is a diplomatic way of serving notice on Mexico to "pay up or else."

The implications of this development for the oil controversy are clear. There are complications in the oil seizures, such as pending litigation and claims of the Mexican government that the oil companies had evaded taxes and failed to comply with labor legislation, but the State Department is now insisting that such matters be referred to an international tribunal and not be settled by the Mexican government itself on terms it considers proper. The Mexican government has been suggesting vaguely that it would make some sort of compensation for the oil properties over a long period of years, but a similar proposal regarding the agrarian expropriations is now flatly rejected by the American government.

Antitrust Policy

The decision of Judge Stone in Madison last week, setting aside the jury's verdict of guilty as to half the defendant oil companies and executives, drew no official comment from the antitrust division of the Department of Justice, but observers viewed it as valuable material for the forthcoming monopoly report of the temporary national economic committee. It bolsters the argument of Assistant Attorney General Thurman Arnold that the present antitrust laws are of little use because they are aimed at the criminal intent of alleged violators and that these laws should be rewritten to attack the economic results of a given business policy. His general contention is that, if a business policy, or a series of trade practices, or the strategic position of a company or group of companies, actually operates to suppress competition at some place or stabilize prices artificially or to influence production, then there is a violation of the spirit of the antitrust laws regardless of the lack of bad intentions on anybody's part. He wants new laws to attack the so-called monopoly problem from this standpoint, and the outcome of the Madison oil case can be cited as proof that the Sherman act is inadequate for this purpose.

It has been noted that this philosophy runs through the preliminary work of the economic committee, of which Mr. Arnold is the guiding hand, but it is also apparent in a number of antitrust suits recently brought by the Department of Justice. In the pending case against the Aluminum Co. of America, for example, the government is contending that the company is violating the Sherman act because, through its size and strategic position, it is able to exercise tremendous economic power over competitors, is able to fix prices, control output and employment in the industry, and to strangle competition—the argument being that the existence of such potential powers is an evil even though the company may not be exercising these powers at the present time. The analogy could be drawn that even though the major oil companies in the Midwest did not conspire to maintain gasoline prices as alleged in the indictment, still they have the economic power and facilities to manipulate prices and that there ought to be a law against it.



STATE CAPITALS

KANSAS

ALLOWABLE PRODUCTION IN KANSAS in August was placed at 165,500 bbls. per day by the Kansas Corporation Commission at a meeting in Wichita on Monday. The figure is 500 bbls. per day more than the July allowable, and 3,800 bbls. less a day than the Bureau of Mines estimate of demand from Kansas fields in August. The meeting was attended by close to 100 representatives of the producing and crude-purchasing branches of the industry. A committee of nine was appointed to work out proposals for changes in the general rules of the state governing oil production and marketing. Dr. E. A. Stephenson, head of the petroleum engineering department of the University of Kansas, was made chairman and H. A. Meyer, managing director of the Kansas Independent Oil Men's Association, was made secretary. The committee includes D. P. Howard, Cities Service Co., Bartlesville, Okla.; H. E. Zoller, Shell Petroleum Corp., Wichita; D. R. McKeithan, Phillips Petroleum Co., Bartlesville; R. L. Marek, Stanolind Oil & Gas Co., Tulsa, and H. K. Beardmore, T. C. Johnson, J. A. Aylward, A. S. Ritchie, and J. A. Vickers, all of Wichita, and representing the Kansas Independent Oil Men's Association.

TEXAS

MARGINAL PRORATION being a much discussed subject in Texas, the railroad commission's quarterly report on marginal production was of special interest. Marginal proration is that term applied to the plan which would grant to all wells in the state their marginal allowable specified by statute, and the difference between that total and the forecasted market demand would then be allocated as proratable oil to larger wells upon a potential, pressure or acreage basis.

Of the 82,322 wells now producing oil in Texas, 32,840 are classified as marginal on the commission's quarterly report. The marginal allowable would absorb 1,175,214 bbls. of the daily state allowable, leaving 437,550 bbls. proratable oil under the present basic allowables of the state. This is considerably in excess of what is actually being produced under the shutdown plan. In certain districts such a plan would alter actual production considerably, but in others the effect would be slight. In North Texas 85 per cent of the total allowable is to marginal wells. West Central Texas is quite comparable. In East Texas 98 per cent of the allowable for the field is required to meet marginal law specifications.

THE STATE TAX BOARD is receiving testimony on the value of various pipe line companies' "intangibles." The Texas Pipe Line Co. lead the fight to obtain a reduction in their valuation, which had been set at $9,365,000, claiming that their system in Texas has only an intangible value of $2,315,638. Expert witnesses were presented to substantiate the company's claim. It was pointed out that today, in so far as pipe lines are concerned, almost every territory served may be considered a stripper area, although each new completion requires just as expensive a connection by the pipe line.

A THREE JUDGE FEDERAL COURT, sitting in Austin, on Monday upheld the law authorizing proration of sour gas in the Panhandle fields. The case was brought by the F. C. Henderson Co. The court, in upholding the statute, denied the Henderson company an injunction. However, it held the case open pending further experience with the proration formula effective in the field.

RULES GOVERNING WELLS in the area to be submerged by the Possum Kingdom reservoir in the Brazos Valley in Young and Palo Pinto counties will be considered by the railroad commission at a hearing on August 12 at Mineral Wells. Twenty-six oil and eight gas wells are in the area to be submerged and 64 oil wells and nine gassers are within a half mile inland of the water line. It may be that all restrictions will be taken from the wells so that the owners can recover full production from their properties until they are submerged, which may be within 20 months.

DETERMINED PREPARATIONS have been made by individual companies and oil and gas associations in various parts of the state, and others, to make a unified plea for a continuation of the Sunday holiday production period throughout the summer so the industry may enter the fall with an improved statistical position. It was felt that if the one-day holiday is lifted, the East Texas field will profit at the expense of every other flush field in the state. At first it was argued that great harm would result to stripper fields due to the one- or two-day shutdowns. Evidence has been gathered by many operators in those districts to prove that as much oil is pumped in six days as was previously pumped in seven, with an accompanying decrease in wear on equipment and fuel costs. In stripper fields, where large volumes of water or high vacuums are not present, there has been a growing desire to continue the one-day shutdown practice.

CALIFORNIA

THE CENTRAL COMMITTEE of California Oil Producers, official curtailment group, will hold its annual election of officers and organization meeting within the next few days as the election of all field committees will have been completed. During the past week operators in the Playa Del Rey field elected Laurence C. Kelly chairman, Elmer Bolton vice chairman, and E. D. Hardison and D. L. Caldwell alternates.

Other recent field committee elections resulted as follows: Inglewood-Potrero, chairman, Joseph Jensen; vice chairman, R. I. Brown. Santa Barbara, chairman, R. A. Broomfield; vice chairman, L. L. Aubert; secretary, D. L. Caldwell; members, J. C. Burks, William L. Hobro, Fred E. Cole. Torrance-Hermosa-Rosecrans-Athens-Lawndale, chairman, W. H. Wilhelm; vice chairman, W. C. Whaley; secretary, E. Robert Burns; members, H. F. Powers, L. R. Rogers, E. H. Grubb, R. I. Brown, S. McIntyre, E. D. Hardison, J. H. Splittstoesser. El Segundo, chairman, R. R. Boyd; vice chairman, J. H. Dyer. Dominguez, chairman, J. U. Stair; vice chairman, R. B. Hodgson. Poso Creek-Round Mountain-Coffee Canyon, chairman, J. L. Stevens; vice chairman, D. L. Caldwell.

OKLAHOMA

PIPE LINE PRORATION in 13 southern Oklahoma pools was found necessary by the Carter Oil Co., which issued the following statement on July 23: "Due to further loss of market occasioned by contamination of our crude stream through continued inclusion of excessive composite receipts of inferior quality crudes from specific areas in southern Oklahoma, this company regrets the necessity of further limiting its overall takings of such crudes and announces that, effective August 1 and thereafter until further notice, it will be obliged to limit its takings from such areas to a maximum of 5 bbls. per well per day on a lease basis from all leases from which it is at present taking oil. The areas to which this applies are as follows: Oscar, Seay, Spring, Hewitt, Tatums, Tussy, North Tussy, Wildcat Jim, Fox-Milroy (shallow), Graham, Cox, Scholem-Alechem, and Wheeler."

GOVERNOR MARLAND left on Tuesday for Colorado Springs, Colo., to attend the Interstate Oil Compact Commission meetings on Friday and Saturday of this week. Leon C. Phillips, Democratic candidate for governor, will be present as an observer on Friday. After the meeting Governor Marland will drive through the southeastern New Mexico and West Texas oil fields. The governor said on Monday that the question of how much New Mexico and West Texas can produce arises continuously at the compact meetings.

NEW MEXICO

TOP ALLOWABLE per well for the non-marginal producers of Lea and Eddy counties, of New Mexico, was decreased 1 bbl. per well because of the addition of 19 new producers, the new proration schedule of the New Mexico Oil Conservation Commission for the last half of July revealed. The new top allowable is 55 bbls. per well daily against 56 bbls. for the first half of July. The state's daily quota of 101,600 bbls. daily was left unchanged.

Fields in the state outside of Lea and Eddy counties were allocated 1,045 bbls. daily. This apportionment was made as follows: Hogback, 200 bbls.; Rattlesnake, 750 bbls.; Table Mesa, 85 bbls., and Aztec-Bloomfield, 10 bbls.

Of the 100,555 bbls. daily allotted to Lea and Eddy counties, 8,983 bbls. daily was given the 218 producing wells in the two counties unable to make the top allowable.

The balance of 91,572 bbls. daily was allocated proportionately to the 1,674 non-marginal producers or wells able to make the top allowable or better. This gave each non-marginal well a top quota of 55 bbls.

The oil producing areas of Lea County, the principal oil producing county, have been classified into 16 pools.

LOUISIANA

COTTON VALLEY OPERATORS COMMITTEE will meet in Shreveport, La., on July 29 to decide on recommendations to be made to Conservation Commissioner Rankin relative to spacing, allowables and other matters having to do with the development of the Lower Marine pay in the Cotton Valley field. Up to recently this was a distillate pay, but Stanolind Oil & Gas Co. completed a crude oil producer in No. 1 Pardee, section 36-21n-10w, in the same formation.

Program for A.A.P.G. Mid-Year Meeting at El Paso, Texas

MIDLAND, Tex.—Plans for the midyear meeting of the American Association of Petroleum Geologists, to be held in El Paso, Tex., September 27 to October 2, are practically completed, according to James FitzGerald, Skelly Oil Co., publicity chairman. The papers to be read, with probable titles and authors, follow:

An introductory paper covering the area and problems that will be discussed in detail throughout remainder of the program, by Ed W. Owen.

Cross-Sections of Central Basin Platform, by James FitzGerald, Jr., W. C. Fritz, Robert I. Dickey, and E. Hazen Woods.

Geology of North Central and Central Texas, by M. G. Cheney.

Aerial Photography for Geological Exploration, by Louis V. Olson.

The Guadalupe Mountains as They Look to the Aerial Geologist, by Cary P. Butcher.

Surface and Subsurface Formations, Eddy County, New Mexico, by Ronald K. DeFord, George D. Riggs, and Neil H. Wills.

Salt and Potash in the Upper Castile Formation of Southeast New Mexico, by George A. Kroenlein.

Relation of Permian Sedimentation to Tectonics in the Guadalupe Mountain Region, by Philip B. King.

Theory of Reef Barriers, by E. Russell Lloyd.

Stratigraphy, Eastern Midland Basin, Texas, by Lincoln R. Page.

Notes on the Black Shale Basin of West Texas, by Taylor Cole.

Stratigraphy of the Upper and Middle Permian of West Texas and Eastern New Mexico, by Frank E. Lewis.

Upper Paleozoic Section of the Chinati Mountains Presidio County, Texas, by John W. Skinner.

Early Paleozoic Formations in Texas, by E. H. Sellards.

Paleozoic Stratigraphy of the Franklin Mountains of West Texas, by Lloyd A. Nelson.

Correlation of the Pennsylvanian Rocks of New Mexico, by Claude E. Needham.

Volcanics of the Buck Hill Quadrangle, Brewster County, Texas, by Morris A. Elms.

Vacuum Field, Lea County, New Mexico, by H. G. Walter.

Monument Field, Lea County, New Mexico, by W. D. Anderson and James R. Day.

North Cowden Field, Ector County, Texas, by Sam C. Giesey and Frank F. Fulk.

Sandhills Field, Crane County, Texas, by E. H. Powers.

Obituaries

C. C. McKNIGHT, 65, retired Long Beach, Calif., oil operator, was killed when his car was struck by a train in Artesia, Calif.

JOHN F. McCARTHY, 55, for 20 years district manager of Sinclair Refining Co. at Milwaukee, Wis., died July 21. Prior to his association with Sinclair, Mr. McCarthy was assistant district manager for Standard Oil Co. (Indiana) in Milwaukee for 11 years.

BAILEY V. EMERY, 44, secretary-treasurer of Dixie Oil & Gas Co., died last week in a Tulsa hospital. He came to Tulsa in 1920, being employed by the Skelly Oil Co., and in 1924 formed the B. V. Emery Supply Co. In 1932 with Curtis Bryan he formed the Bryan & Emery Oil Co. Eighteen months ago he joined with John Scott, R. W. Reynolds and associates in forming the Dixie Oil & Gas Co. He went abroad while a youth, and enlisted in the French foreign legion, later joining the French army, winning a citation for bravery during the World War.

J. BRAYTON PHILBROOK, well-known southern California petroleum geologist and engineer, died from a heart attack while inspecting a mining property in Arizona. Born in Salem, Ore., he had been associated since 1919 with the development of oil in southern California, and for many years was on the geological staff of Union Oil Co., Texas Co. and as chief geologist of Italo Oil Co.

CLYDE M. BECKER, consulting geologist of Chickasha, Okla., died July 19. He had been bedfast since December. He was born May 23, 1882, at Arlington, Iowa, and received his degree in geology in 1912. He spent seven years in gold and silver mining work in Colorado and New Mexico and, after service with the engineers during the war, entered the oil business. His study of the Wichita Mountains and other geological work of southwestern Oklahoma took him into North Texas and he was one of the first to study the deep lime possibilities of the K.M.A. field in Wichita County. In 1934 he acted as deputy conservation officer of the Oklahoma Corporation Commission.

J. I. GILLESPIE, 62, Kansas oil operator, died at Yates Center last week. He was a native of Oil City, Pa., operated in the Pennsylvania and Ohio oil fields before moving to Oklahoma in 1903, settling at Tulsa. He participated in the early oil development at Bird Creek, Nowata and Glenn pools. He followed most of the major oil booms in Louisiana, Texas and Arkansas. In July, 1935, he moved to Wichita representing F. A. Gillespie & Sons, Tulsa operators. He assembled the block on which the discovery well of the Faubin (Lansing) pool of northern Rooks County was drilled in March, 1936, as the most northerly production in the Mid-Continent region. In January of 1937, he moved to Yates Center from which he operated in Woodson, Allen and adjacent counties in the southeastern portion of Kansas.

THE MARKETS*

CRUDE OIL: *With crude oil still being taken from storage, and reductions totaling 20,000,000 bbls. since April 1, the crude market generally is steady. Sales under the market are confined to movements by truck and short tankcar hauls in a few scattered fields. The expanding production in several fields east of the Mississippi river continues to necessitate minor changes in oil movements west of the river, particularly in Oklahoma and Kansas.*

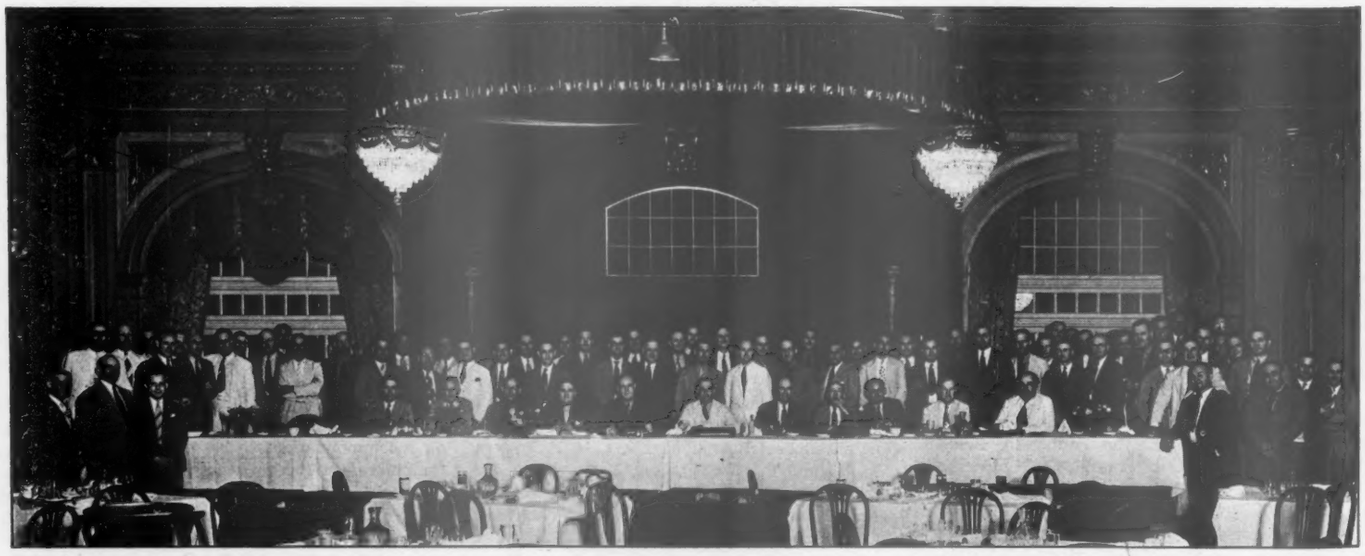
REFINERY: *Desire on the part of refiners to liquidate gasoline stocks before fall apparently explains softness in that market reported at few points. Seasonal demand brings advances in Mid-Continent naturals. Improved demand for fuels with higher prices on some grades in East. Better tone in Pennsylvania lubricants.*

TANK-WAGON AND POSTED DEALER: *Unsettled retail gasoline markets at several points has brought reductions in posted dealer and tank-wagon markets.*

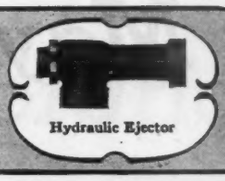
FINANCIAL: *Oil stocks move within narrow range. Average of 30 representative stocks for week ending July 23: High, 32.60; low, 31.05; close, 32.15. Week ending July 16: High, 32.17; low, 29.99; close, 31.39.*

**Detailed information in Market Section.*

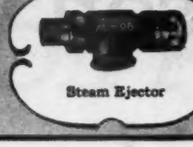
Sponsors For the 1939 Oil-World Exposition at Houston, Texas

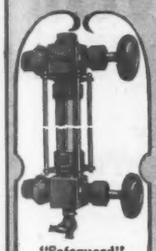


Officers, directors and members of Oil-World Exposition, Inc., which is in charge of arrangements for the next oil show to be held at Houston, Tex., April 24 to 29, inclusive, next year. More than 400 exhibiting spaces in the main building have been contracted for or reserved, General Manager E. G. Lenzer reports. A large annex has been constructed adjoining the Coliseum where the last show was displayed, affording liberal space for more exhibits.


Hydraulic Ejector

PENBERTHY PRODUCTS


Steam Ejector

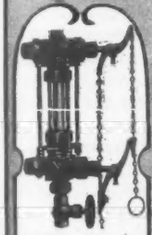

"Safeguard" Automatic Liquid Level Gage

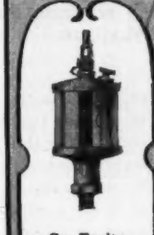
Automatic Injector

PENBERTHY *Reflex Gages*

(Licensed under Jerguson Patent)

have many refinery and natural gasoline plant applications


"Navy Type" Liquid Level Gage


Gas Engine Lubricator

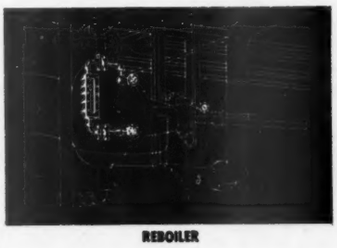
VAPOR RECOVERY

ACCUMULATOR TANK

● The sketches show only a few of the many important applications for Penberthy Reflex Gages in oil refineries and natural gasoline plants. As a matter of fact, Penberthy Reflex Gages are preferred wherever a liquid level must be easily and positively visible . . . when that liquid is under pressure or at high temperature (or both).

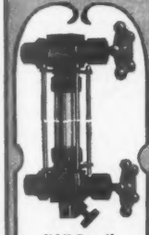
Penberthy Reflex Gages are of exceptionally rugged construction; they are made in any length desired and for various kinds of liquids. We shall be glad to quote upon your requirements,

MULTIPLE TYPE EQUIPPED WITH DROP FORGED STEEL GAGE VALVES


REBOILER

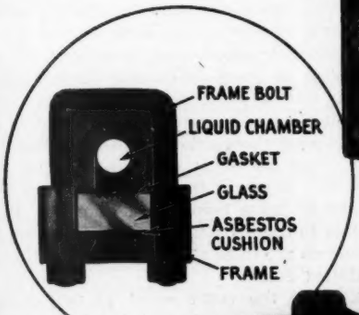
EMPTY SPACE SHOWS WHITE

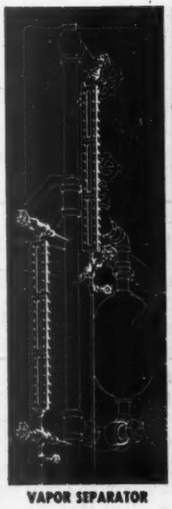
LIQUID SHOWS BLACK


"All-Iron" Automatic Liquid Level Gage

Snap Lever Oiler

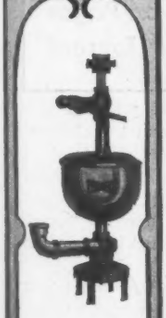
PENBERTHY PRODUCTS




VAPOR SEPARATOR

CRACKING STILL

STABILIZER


Automatic Cellar Drainer (Water or Steam Operated)

Automatic Electric Sump Pump

PENBERTHY INJECTOR COMPANY Manufacturers of QUALITY PRODUCTS Since 1886
DETROIT, MICH. • Canadian Plant, Windsor, Ont.

Spring Compression Grease Cup

Plain Compression Grease Cup

Screw Plunger Grease Cup

Madison Grand Jury May Not Consider New Oil Cases

By R. B. PYRE

MADISON, Wis., July 26.—Federal District Attorney John Boyle said today the regular session of the grand jury, which will reconvene August 3, will not consider any of the oil cases.

WASHINGTON, D. C., July 26.—The impression gains ground that the Department of Justice, following Judge Stone's comment on the oil cases, may abandon its intention to continue the grand jury investigation at Madison.

MADISON, Wis., July 21.—Notice of appeal to the seventh Circuit Court of Appeals in Chicago has been filed in federal court here by counsel for the 12 major oil companies and 5 executives who were fined $65,000 by Judge Patrick T. Stone on July 19, when he sustained their guilt on a charge of conspiracy to raise and fix gasoline tankcar prices.

The appellants cite 27 reasons for the appeal. most of them including specific instances of alleged error by the court during the four-month trial which ended on January 22.

Improper conduct by counsel for the government is one of the grounds asserted for claims that the defendants were denied a fair trial.

The appellants have been granted 120 days to file a bill of exceptions and the appeal bond was fixed by Judge Stone at $25,000. Counsel for the defense and the government were directed by his order to confer with him on possible amendments to the bill of exceptions.

All of the defendants, corporate and individual, fined in the price-fixing case signed the appeal, based on the following grounds:

1. That trial of the defendants in Wisconsin violated the sixth amendment to the constitution which guarantees trial by an impartial jury in the state and district where the crime is alleged to have been committed, there having been no allegation that the conspiracy was entered into within the western Wisconsin district nor that any overt act was committed in this district; that the court erred in overruling demurrers based on questions of proper venue.

2. That the court erred in charging the jury in substance that sales of gasoline to jobbers and consumers in Wisconsin at prices affected by the defendants constituted overt acts.

3. That the court erred in permitting government counsel, "on numerous occasions," in examining important witnesses to use unauthenticated "alleged" transcripts of grand jury testimony and notes taken by government counsel to impeach testimony or refresh recollection without permitting the witnesses or defense counsel to inspect the transcripts which were read in the presence of the jury.

4. That the defendants were deprived of a fair trial because of conduct by government counsel: (a) In improper questioning of witnesses; (b) in making improper remarks in the presence of the jury concerning witnesses and their testimony; (c) in making during the trial and in the presence of the jury improper remarks not supported by evidence in the record; (d) in making improper, inflammatory, abusive and unsupported statements and appeals to prejudice in arguments to the jury; (e) in stating to the jury that certain matters as to which no evidence was in the record were true within their personal knowledge; (f) in raising certain issues in closing arguments which had not been raised by the indictment but which in fact were "materially and prejudicially contrary to the allegations in the indictment."

5. That the defendants were deprived of a fair trial because the case was tried and submitted to the jury under a "fundamental misinterpretation and misapplication" of the provisions of Section 1 of the Sherman antitrust act, in that in ruling on evidence and charging the jury the court held in effect that activities of a group having power to affect or control the prices of gasoline were not to be judged by the "rule of reason."

6. That the court erred in submitting to the jury issues not raised by the indictment but which on the contrary were materially and prejudicially at variance with the indictment.

7. That the court ruled acts by the secretary of the interior and subordinate officials operating under the National Industrial Recovery act and the code of fair competition for the petroleum industry which were brought to the attention of the appellants were immaterial in determining whether or not the appellants had entered into the conspiracy alleged and that the court erred in exclusion of evidence showing these acts and the reliance placed by the appellants upon them.

8. That the court erred in instructing the jury in substance that there was no evidence shown of governmental approval or acquiescence in the conduct of appellants.

9. That the court erred in refusing to allow defendants to show the ecpnomic history of events leading to their conduct and refusing to allow the defendants to show the course of the price of gasoline during years prior to 1935, the efforts of administrative officers of government to raise prices during those years and their failure.

10. That the court erred in refusing to instruct the jury that there was no unreasonable restraint of trade involved in efforts of the defendants to comply with the announced purposes and known activities of administrative officers of the United States.

11. That the court erred in failing to instruct the jury properly and fully, in substance, that it was necessary to find from all the evidence that the defendants entered into some agreement, express or implied, which constituted the alleged conspiracy and which, if carried out would have been capable of accomplishing the alleged illegal purpose.

12. That the court erred in giving certain charges and refusing to give certain other charges to the jury, which had the effect of permitting or compelling the jury to disregard questions as to whether the restraint of trade, if any, was reasonable.

13. That the court erred in charging the jury, in substance, that allegations in the indictment relative to the fixing of prices through the medium of false reports of prices sent to and inserted in the trade journals were immaterial and nonessential allegations, the failure to prove which the jury might disregard.

14. That the court erred in charging the jury, in substance, that allegations to the effect that the defendants purchased gasoline from independent refiners at uniform high, arbitrary and noncompetitive prices and from time to time progressively increased prices as agreed upon by the defendant major oil companies, were immaterial and unessential allegations, failure to prove which the jury might disregard.

15. That the court erred in charging the jury, in substance, that under Section 1 of the Sherman act any combination or conspiracy having the purpose and intent to raise prices to any extent by any means whatsoever is illegal.

16. That the court erred in charging, in substance, that under Section 1 any concerted action to raise prices to any extent and by any means whatsoever by persons having the power to raise prices is illegal.

17. That the court erred in charging the jury, in substance, that if a conspiracy was proved they could consider the statements of co-conspirators against all of the defendants regardless of whether or not such defendants had been proved to be participants in the conspiracy.

18. That the court erred in improperly restricting the scope of counsel's opening statement to the jury.

19. That the court erred in admitting improper and prejudicial evidence, oral and documentary, over objections of counsel.

20. That the court erred in permitting the government unlawfully to impound appellants' documents and papers and permitting government counsel to use such documents "unlawfully taken from the appellants and impounded."

21. That the court erred in denying the several motions for directed verdict at the close of the government's case by those appellants who rested their cases at that time.

22. That the court erred in denying appellants' several motions to strike exhibits and testimony received over objections or to limit their use.

23. That the court erred in denying appellants' several motions to strike exhibits and testimony originally admitted over objections or in the alternative to limit their use, which motions were submitted at the close of all evidence.

Complete text of Judge Stone's decision will be found on Pages 199-203 of this week's Journal

24. That the court erred in denying the several motions for directed verdicts at the close of all evidence.

25. That the court erred in denying motions for new trial.

26. That the court erred in denying appellants' several motions that the verdict be set aside and the indictment dismissed.

27. That the court erred in not admitting certain material, relevant and competent exhibits and testimony, by refusing to give the jury each of the appellants' requested instructions limiting the admission, consideration and use of certain evidence, and in charging the jury erroneously in other respects and "committing other prejudicial errors" not specifically mentioned.

28. All grounds to be amplified by supplemental briefs to be presented to the appeals court.

Exploration for New Oil Fields Stimulated by Soil Analysis

By L. G. E. BIGNELL

Soil analysis, a new tool for the geologist and geophysicist, promises to stimulate exploration for new oil reserves. Like most new ideas, it is not accepted by the profession as perfected, but it is admitted to have possibilities and undoubtedly will be given a thorough trial in both field and laboratory to demonstrate its real value. The writer will attempt to summarize the opinions of geologists, geophysicists and executives of oil companies regarding this development and give some of the general uses to which the method may be applied.

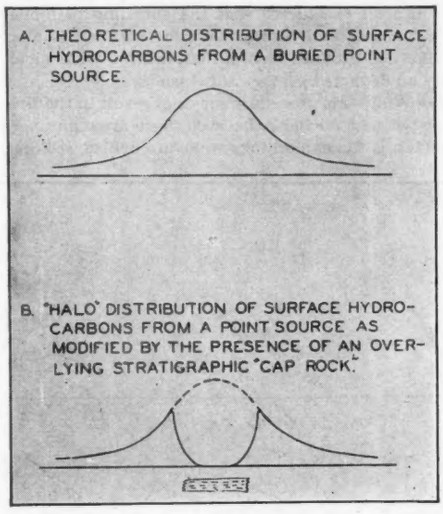
Soil analysis is not a new science, although its application to the location of hydrocarbons in the soil for the purpose of detecting possible underground reserves of gas and oil has been developed recently. Russian geologists have used soil gas analysis for about six years and it is considered routine practice to supplement other methods of working out the probable location of new gas and oil fields.

In this country many have been impressed with the possibilities of using hydrocarbon content of the soil to outline areas under which gas or oil may exist. Gas seeps and oil showings have been recognized as indicators of underground deposits of gas and oil and have been used as guides for the location of wells. Some with a keen sense of smell have claimed they could detect odor of crude oil in certain soils and pointed out such evidence should justify drilling. Those men were called "soil sniffers."

The gas mask developed for war purposes is based upon the principle that activated charcoal will adsorb the poisoned gas but permit air to pass. This same principle is applied in the reasoning that soil will adsorb some of the hydrocarbons passing upward from deep-seated gas and oil pools. There are more than six methods of detecting hydrocarbons in the laboratory, and others that might be applied if needed. These methods are being used in two commercial laboratories in this country. Hydrocarbons, principally methane and ethane, are detected in millionth and billionth parts by weight. The variation in the soil content of methane and ethane and heavier hydrocarbons is used as a basis for correlation and interpretations of laboratory results. Contours and isolines can be drawn on maps, thus outlining the areas under which it is suspected oil may be present.

The interpretation of laboratory data requires skill. The Russian scientists admit they have difficulty in agreeing upon the contours to be drawn after laboratory work has been completed, but this cannot condemn the method. It is difficult for geophysicists to agree upon the interpretation of data secured in the field, but the industry certainly has benefited by the use of applied geophysics.

To most people the statement that hydrocarbons in the soil reflect the presence of gas or oil pools hundreds of feet beneath the surface is mysterious. But it has been demonstrated such is a fact. The theory advanced to explain the accumulation of hydrocarbons immediately above the buried pool is that the natural gas or hydrocarbon vapor will tend to move upward because of its light specific gravity. That gas can escape from an oil pool without allowing the fluid to escape can be demonstrated by testing fluid-tight vessels that have been subjected to high hydrostatic pressures and then filled with gas and a vacuum applied. The gas may escape, even though the vessel was tight for the fluid.


A. THEORETICAL DISTRIBUTION OF SURFACE HYDROCARBONS FROM A BURIED POINT SOURCE.
B. "HALO" DISTRIBUTION OF SURFACE HYDROCARBONS FROM A POINT SOURCE AS MODIFIED BY THE PRESENCE OF AN OVERLYING STRATIGRAPHIC "CAP ROCK."

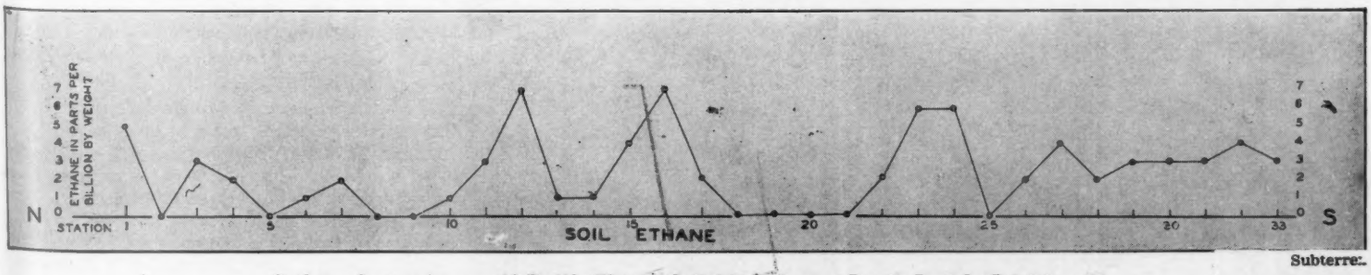
After the gas has escaped from the oil pool its movement upward is similar to the upward flight of a balloon which would move in a straight vertical line if not acted upon by air currents. As the gas or hydrocarbon vapor is not under pressure after it leaves the underground reservoir, or more properly stated is not under appreciable pressure, it will tend to ascend in relatively direct lines toward the surface.

As a matter of fact one reason for the difficulty in understanding this phenomenon is the tendency for one to think of gas as moving in a straight line, whereas it really moves upward through a straight line above the oil pool. What really happens is that the surface of the gas or oil pool gives off hydrocarbon vapor over its entire area. This light element will diffuse through the rocks above the pool and tend to occupy a space similar to the lower half of a sphere, the base of the sphere resting directly upon the top of the accumulated gas or oil in the pool. No stratum of sedimentary rock is absolutely impervious and the hydrocarbon gas will find upward escape, but it cannot move horizontally because it is not under pressure after leaving the underground reservoir. Regardless of the pressure in the reservoir, this force is not transmitted to the escaping gas after it leaves the surface of the hydrocarbon body because the seal over the pool must be tight enough to preserve the major portion of the fluid or no underground reserve would be established.

If the theory that hydrocarbons in the soil give clues to the presence of existing pools of gas and oil underground is accepted the industry has a new tool to work with just as it has had in the past when the study of surface structures was applied to locating favorable places to drill, and later the study of samples of cuttings developed the science of subsurface geology, to be followed by geophysics and micropaleontology. All these methods have served as tools for the geologists and are still being used and will be used wherever conditions permit.

The first oil fields were found by drilling in the vicinity of seepages. Then the oil man developed what were described as "trends," which later proved to be regional structural features although not recognized as such when they were drilled. The theory of gravitational arrangement of natural gas, oil, and water according to density was formulated early in the life of the oil industry, but was not generally accepted until 1885 when Dr. I. C. White revived it by making practical application through the discovery of several gas and oil fields in the Appalachian region.

It was not until early in this century that surface geology was extensively applied to the discovery of new oil fields. This method reached its



Subterre:

Soil analysis of area of South Elton oil field, Jefferson Davis Parish, Louisiana

peak about 1920. Subsurface samples obtained by drilling were studied, and correlations of data supplied by drillers' logs was started about 1917, marking the beginning of micropaleontology.

With the change from cable tools to rotary equipment about 1920 the increased use of micropaleontology was noted and also about that time geophysics were applied to the discovery of underground structures favorable for the accumulation of gas and oil and these methods are still extensively used. The use of geophysics reached its peak about 1936 and has since declined because of the lack of stratigraphic data in unexplored regions where oil and gas might exist.

The geologist and geophysicist will continue to use surface geology, subsurface sampling and geophysics along with micropaleontology and add any new methods as developed. One of these new methods is soil analysis.

For some time the geologist has advocated the search for new oil pools along the buried ancient shore lines where it is logical to assume gas and oil must have accumulated. Many of the large oil fields have been found by chance and later study has indicated they were located along old shores and it is the hope of the geologist to develop ways for the finding of other fields which present difficulties for the application of present geological methods. These fields lack surface structure. Subsurface conditions are not favorable for the use of geophysical methods. It has been suggested the drilling of exploratory wells to obtain stratigraphic data should be started in favorable areas and when these data are accumulated apply them with other geological methods to the location of test wells.

The difficulty in applying exploratory drilling to regions where gas and oil are suspected lies in the fact that it is hard for the company doing the work to get adequate protection on the surface rights and be assured of being able to follow up the discovery by acquiring leases over the favorable area. It is not practicable to lease vast areas for exploratory drilling in advance of doing the field work, and if the holes are drilled without protection it is possible others may share in the discovery before the company spending the money for the exploratory work can get full protection. This condition makes it difficult to sell the executives on the exploratory drilling idea.

Through soil analysis it will be possible to sample an area at wide intervals and have the samples analyzed for hydrocarbon content. If any show marked concentration the next step would be to sample that particular area in the approved manner by taking one sample every one-tenth mile. This sampling is usually done on some pattern, and the laboratory results then are plotted on a surface map. If the results show an area of hydrocarbon concentration in the soil it will indicate either the presence of a gas or oil reserve in the immediate vicinity or be a direct reflection of structural conditions wherein the hydrocarbons have accumulated in the high part of the formation.

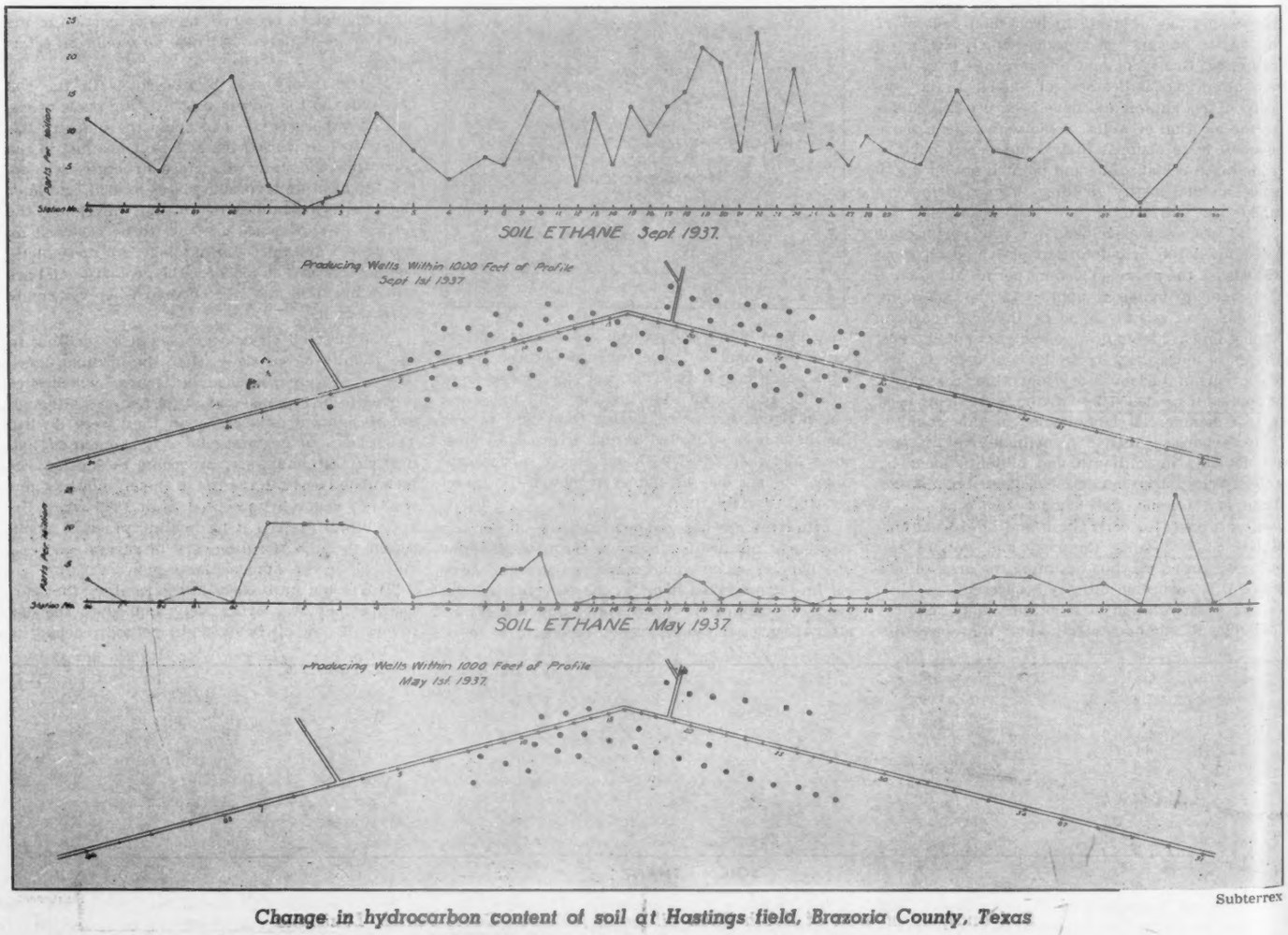
With this information at hand it would be possible to cover the favorable area with leases and then proceed to drill exploratory wells to test the subsurface conditions. It should be easier to convince oil executives that the spending of money in an area of hydrocarbon concentration is more likely to produce results than drilling wells strictly on deducted geological evidence.

While this procedure may not result in the finding of new oil fields, because there are many variables, if the exploratory wells are drilled, it is certain to place in the hands of the geologists much needed information and permit study of subsurface conditions which may locate new fields. This condition is analogous to the use of the magnetometer when first applied to the search for structures. Areas were mapped and drilled and many proved dry. But the data collected during the drilling of the dry holes aided in the later discovery of new fields.

Soil samples are taken at the surface with a sampling pick or a soil auger. Or they may be taken from some point more than 8 feet below the surface beneath vegetation or by the drilling of shallow holes into the rock and taking from such holes gas samples for analysis. The laboratory procedure contemplates the use of either soil or gas samples for determination of hydrocarbon contents. Another method of sampling is to drive a special sampling tool into the soil and then suck air and gas from the soil and collect it in suitable containers.

It has been found that great care must be taken in the handling of soil or gas samples. They are easily contaminated. It is necessary to have the laboratory work done within a week after the samples are taken or results may be misleading.

While there are many things still to be developed in this new method, the principal value of soil analysis to the oil industry will be in stimulating interest in drilling in regions where geology indicates the presence of old shore lines or other favorable structural features not possible to detect by other geological methods. When the soil shows hydrocarbon concentration it is a clue to some change in regional conditions and this in itself should be of some aid to the geologist in his search for new oil reserves.



Subterrex

Change in hydrocarbon content of soil at Hastings field, Brazoria County, Texas

K.M.A. Requires Outlets; 50 Wells Uncompleted

By D. H. STORMONT

FORT WORTH, Tex., July 25.—Completion of over 500 wells in the K.M.A. field within the past six months has resulted in over 50 wells being without pipe line outlet. About 120 rigs are now drilling in the field and with completions running in the neighborhood of 15 wells weekly operators are becoming concerned regarding outlets. For as each week passes the number of unconnected wells becomes higher and they feel a continuance of this unhealthy condition may cause some operators to resort to price cutting in an attempt to move their oil. At present, however, it is claimed no hot oil is being produced and there is no underselling except in the instance of a local refinery paying the posted price of $1.20 for oil delivered only to its plant. This in some instances amounts to as much as a 12½-cent cut.

The present situation in the K.M.A. field has been compared to that in the early days of the East Texas field, only, of course, on a much smaller scale. The field is almost entirely owned by small independent operators and development has proceeded at a rate exceeding its outlet. The present condition is a direct result.

Nearly all of the field's 615 wells are able to make their allowable, or would be able to if pipe line connections were made available. Under latest railroad commission orders a maximum daily allowable of 35 bbls. per well is established. The allowable is computed on a per well per acre basis, i.e., it is computed on the basis of allowing 16.40 bbls. per well and .93 bbl. per acre with a 20-acre unit having the maximum allowable of 35 bbls. Under present proration K.M.A. wells receive one of the highest allowables of any field of its depth and cost of drilling in Texas. This comparatively high allowable and the fact the field is owned mostly by small operators are no doubt the chief causes of the present condition as they are both conducive to a high rate of development.

As shown in the accompanying table, 51 wells with an allowable of 1,700 bbls. do not have pipe line connections at present according to railroad commission figures. In addition to this number there are several wells that have been drilled to the pay but were not completed or reported as completions due to the lack of pipe line connections. Thus the total number of wells in need of outlets is probably well over that shown. Nearly all of the wells without connections are on leases having pipe lines, but since the pipe line companies have no need for additional oil in many instances no line is laid to new wells as they are completed. Thus six wells on a lease may have connections, but a more recently completed well will not.

The field is served by five major pipe lines, the number of wells connected and the amount handled by each being shown in the table. Texas Co. is tied in with 62 per cent of the field's 564 connected wells and Sinclair Prairie Pipe Line Co. to 20 per cent. Lines of Continental Oil Co., Gulf Pipe Line Co. and Magnolia Petroleum Co. handle the remainder. The line operated by Continental runs to its Wichita Falls refinery. Thus, with the exception of the 1,125 bbls. handled by this refinery and that going to plants of the Falls Refining Co. and Panhandle Refining Co., most K.M.A. crude is moved to the Gulf Coast. Continental's storage facilities at its refinery are full so it cannot increase its take and the other pipe line companies state they cannot handle any more oil due to lack of either demand or capacity.

Some relief from the field's present situation will be offered upon completion of a 1,500-bbl. refinery to be built immediately. Cargo Oil Corp. of Wichita Falls and New York is now clearing site for the plant on the Wichita Valley Railroad, 800 feet west of the townsite of Mankins and 4 miles south of the K.M.A. field. In addition, the company is to build a field gathering system and a 25-car loading rack, and will ship crude by rail to the Gulf Coast for foreign shipment. Thus completion of the project will afford the field an additional outlet of 4,000 bbls., 3,000 bbls. to export and 1,000 bbls. to the plant, and will care for the output of about 70 wells. The company is headed by George Goldwin, who formerly operated Archer Oil & Refining Co. at Mergargal, Tex.

Plans for the plant call for the 1,500-bbl. high-pressure tube still and auxiliary equipment to be in operation shortly after September 1. From analysis of the crude it is expected approximately 50 per cent of 400 endpoint, 61.3 gravity gasoline will be obtained as compared with a 38 per cent recovery for most North Texas crudes. In addition, the plant will manufacture kerosene, wax distillates and heavy fuels; also diesel oils for which there is a good local demand. W. E. Hames, formerly superintendent of the Archer plant, has been appointed superintendent.

The 4,000-bbl. outlet offered by Cargo's facilities would remove the present tenseness in the field, but since these will not be completed for over a month they probably will be inadequate, especially if the present high drilling rate is maintained.

Another plan for providing the unconnected wells with outlets is being studied by K.M.A. operators. A committee, headed by D. H. Bolin of Wichita Falls, as reported in The Oil and Gas Journal last week, is seeking a 10,000-bbl. oversea market for the crude. The plan consists of forming a gathering line company to transport crude from the field to Texas Co. lines with the latter company moving the crude to the Gulf Coast through its system.

CONNECTIONS AND OUTLETS OFFERED BY K.M.A. PIPE LINES

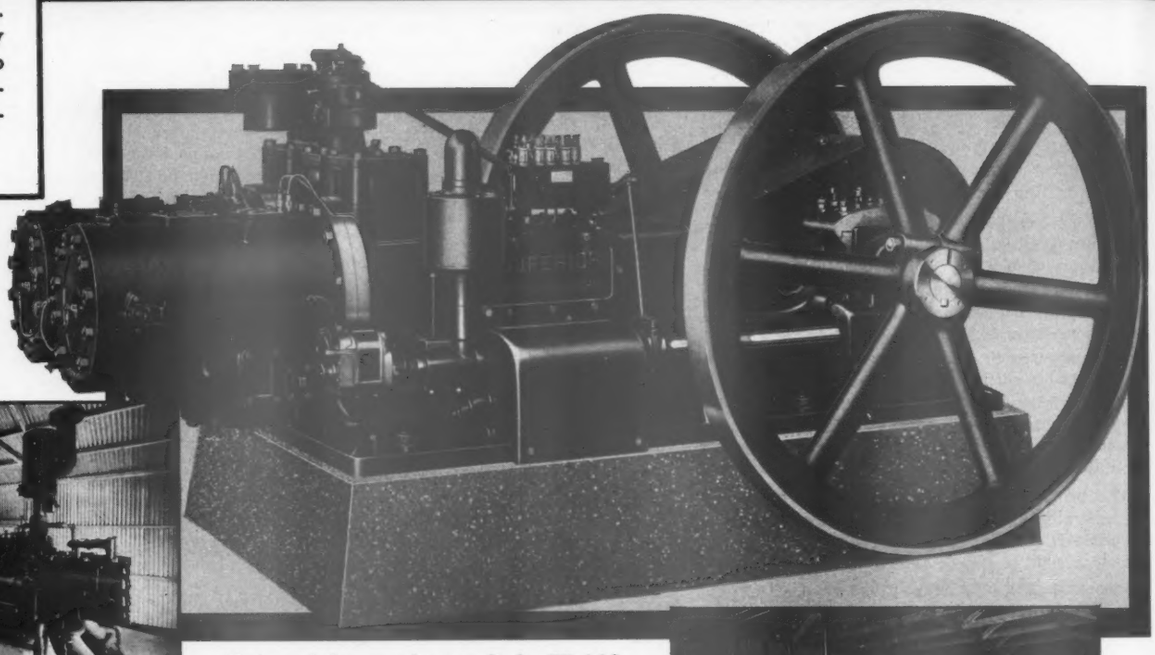
Pipe line—	No. of wells	Allowable	Total pipe line outlet	Wells	Leases	Operators
Continental Oil Co.:						
Subject to proration	32	1,107.68	.....	...	...	...
Not prorated	1	18.00	.....	...	...	...
Total	33	1,125.68	1,125.68	33	14	7
Gulf Pipe Line Co.:						
Subject to proration	48	1,559.21	.....	...	...	...
Not prorated	4	88.00	.....	...	...	...
Total	52	1,647.21	1,647.21	52	22	16
Magnolia Petroleum Co.:						
Subject to proration	19	618.50	.....	...	...	...
Not prorated	...	.....	.....	...	...	...
Total	19	618.50	618.50	19	8	7
Sinclair Prairie Pipe Line Co.:						
Subject to proration	108	3,624.03	.....	...	...	...
Not prorated	5	100.00	.....	...	...	...
Total	113	3,724.03	3,724.03	113	50	38
Texas Co.:						
Subject to proration	338	10,915.57	.....	...	...	...
Not prorated	9	167.00	.....	...	...	...
Total	347	11,082.57	11,082.57	347	...	...
Total subject to proration	545	17,824.99	.....	...	...	...
Total not prorated	19	373.00	.....	...	...	...
Total connected	564	18,197.99	18,197.99	564	...	...
On Texas Co.'s line but with no pipe line connection	47	1,569.49	.....	...	...	...
On other lines but with no pipe line connection	4	140.00	.....	...	...	...
Total unconnected	51	1,709.49		...	...	...
Total K.M.A.	615	19,907.48	18,197.99	564	...	...

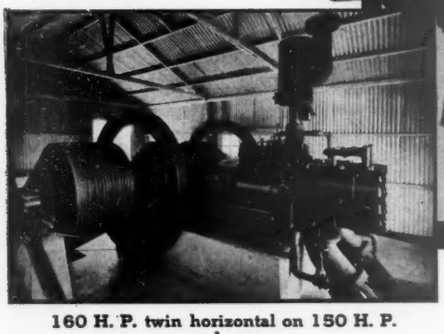
One of three Continental Oil Co. compression plants now under construction in the K.M.A. field for pressure maintenance. The system consists of the main compression, stabilization, and recycling plant shown and two auxiliary compression and recycling plants. Raw gasoline from the auxiliary plants will be run to this plant for stabilizing

Superior GAS ENGINES

ON CENTRAL POWERS ● Minimum Investment per Well ● Least Labor and Maintenance ● Lowest Pumping Costs ● Greatest Continuity of Service ● Long Life . . . . .

Horizontal and vertical engine models in a wide range of H. P. ratings for every condition up to largest bandwheel and geared powers.





160 H. P. twin horizontal on 150 H. P. geared power.

Horizontal slow speed twin cylinder 75, 100, 120 and 160 H. P. Also single cylinder 25, 30, 40, 45 and 50 H. P. Convertible to oil (120 H. P. and smaller).

120 H. P. twin horizontal on large bandwheel power.

Vertical multiple cylinder medium speed gas engines in 30, 50, 75, 100, 160 and 240 H. P. Convertible (50 H. P. and larger).

Vertical gas engine on geared power.

NATIONAL

THE NATIONAL SUPPLY COMPANY

EXECUTIVE OFFICES: PITTSBURGH, PA.
DIVISION OFFICES: FT. WORTH, TEXAS; TULSA, OKLA.; TORRANCE, CALIF.
GENERAL SALES OFFICE: TOLEDO, OHIO

World Output 8,053,381 Bbls. Less in First Half of 1938

By H. STANLEY NORMAN

Curtailment in production in the United States in May and June was a major factor in the world crude oil production in the first six months of the year. World production totaled 977,344,486 bbls., which represents a decline of 8,053,381 bbls. compared with the same period of last year which established a record.

Most other important oil-producing countries registered increases this year over 1937, with Mexico an outstanding exception. Normal production in Mexico was abruptly interrupted March 18 when properties of 17 private companies were expropriated. As a result the estimated production from Mexico dropped to 18,688,000 bbls. for the first six months of this year, a decline of more than 5,000,000 bbls. from the total of 23,744,000 bbls. produced from January to June last year.

Soviet Russia (including Sakhalin), Venezuela, Iran (Persia), Netherlands East Indies (including Brunei and Sarawak), Colombia, Argentina, Trinidad, British India (including Burmah), Bahrein, Germany, Ecuador, Canada and those countries listed as "others" increased their first half of 1938 production by the amounts indicated in the accompanying table.

Iraq suffered a slight loss and Peru, Poland, Rumania, Japan and Egypt joined the United States and Mexico in producing less oil the first half of this year than for the same time in 1937.

Outside the United States, however, estimated aggregate world crude production increased approximately 14,000,000 bbls. The substantial gains in the U.S.S.R., Venezula, Iran and to a lesser degree in the others mentioned were nevertheless insufficient to offset the decline of more than 23,000,000 bbls. in the United States and Mexico alone.

Exclusive of the United States and Mexico, the largest reduction in estimated crude oil output this year was suffered by Rumania, where the industry labored under the severe restrictions on exchange and prospecting permit acquisition carried over from 1937. Just before turn of the six-month period Rumanian restrictions on the oil industry were relieved to some extent and may reverse the trend next year. The relief granted in Rumania probably will not become apparent in results before 1939 and possibly 1940.

The estimate of 18,688,000 bbls. on Mexico's first six months' production is hardly more than a guess based upon the best sources of information available. Since properties of 17 private companies were expropriated March 18, the Mexican government has maintained strict silence on official production figures. It is estimated, however, that the current rate of production is little more than 60 per cent of normal. The production rate was even more drastically curbed during the last half of March and most of April, but experienced an upturn in May and June as the government established a few direct sales outlets.

Most of the increase credited to Germany, amounting to 452,000 bbls. for the six-months period, was acquired by annexation of Austria which is currently producing about 1,200 bbls. of oil daily.

Soviet Russia's crude-oil production made an unimpressive start this year, but during the past three months moved ahead at a more satisfactory rate with some of the fields exceeding their projected quotas. Indications are that Soviet production will close the year with the most impressive record attained.

At least a part of the increase in Venezuela for the past half year is due to absence of labor trouble in the various fields. There have been slight interruptions in routine operations in that country this year. Venezuelan production was drastically curtailed in January and the first half of February, 1937, by labor strikes which reduced activity in all Lake Maracaibo fields. No such interruption of activity existed in the first half of this year. For the first six months, Venezuelan crude oil production averaged 499,172 bbls. per day, but is currently exceeding that average because of the inclusion of one new shipping field and increased output from some of the older areas. There has been a decided decline in Lagunillas field production during the past few months, but Tia Juana, which was added to the shipping fields in the early part of 1937 and Temblador included since April have more than offset the declines elsewhere.

Although at least two new fields have been definitely proven productive in Iran neither has been connected to channels of trade. The increased production in that country, therefore, came largely from the Masjid-i-Sulaiman and Haft-Kel fields. Increased output was made possible by expansion of the refining and shipping facilities at Abadan. Plans are now under consideration for erection of another refinery and construction of a pipe line from the new Gach Saran field, east of Abadan and about 40 miles inland from the Persian Gulf Coast.

Colombian crude-oil production registered another substantial increase the first half of this year due to Tropical Oil Co. activity in its proven fields. Substantial production developed on the Barco concession in eastern Colombia by Colombian Petroleum Co., owned jointly by Texas Co. and Socony-Vacuum Oil Co., Inc., will not figure in the country's output before 1939. It is estimated, however, that the Barco concession is now qualified to produce more than 20,000 bbls. per day with the exploratory program being pushed in anticipation of steady output when the South American Gulf Oil Co. line, another subsidiary, is finished late this year or early next.

Peruvian production fell behind 1937 levels throughout the six months and apparently will require discovery of a new reserve, or deeper producing horizons in existing fields, to recapture its previous rate of output. Exploration is being carried on in several parts of the country which may check the decline in output, but hardly within the next six or 12 months.

Argentina's production increase is the result of an aggressive drilling campaign carried forward by the government controlled company. Under existing conditions in Argentina little attention is accorded the economic justification for development. On the other hand, the government company is sparing no expense in developing greater production. Extensions and deeper producing horizons in the Comodoro Rivadiva field are largely responsible for the country's increased production over 1937.

Trinidad also had an extensive and intensive

(Continued on Page 77)

ESTIMATED WORLD CRUDE OIL PRODUCTION

	Six months		Increase	
	1938	1937	1938	Per cent
United States	597,051,486	619,160,867	*22,109,381	*3.7
U.S.S.R. (including Sakhalin)	105,200,000	100,376,000	4,824,000	4.8
Venezuela	90,350,000	84,015,000	6,335,000	7.5
Iran (Persia)	41,150,000	36,235,000	4,915,000	13.5
†Dutch East Indies	29,800,000	28,450,000	1,350,000	4.7
Rumania	24,840,000	27,179,000	*2,339,000	*8.6
Mexico	18,688,000	23,744,000	*5,056,000	4.7
Iraq	16,200,000	16,215,000	*15,000	.09
Colombia	10,274,000	9,971,000	303,000	3.0
Peru	8,060,000	8,615,000	*555,000	6.4
Argentina	8,350,000	8,029,000	321,000	4.0
Trinidad	8,230,000	7,178,000	1,052,000	14.6
‡British India	4,950,000	4,790,000	160,000	3.3
Bahrein	4,225,000	3,856,000	369,000	9.5
Poland	1,810,000	1,814,000	*4,000	*.2
Germany	1,944,000	1,492,000	452,000	30.3
Japan (including Taiwan)	1,230,000	1,256,000	*26,000	*2.0
Ecuador	1,084,000	1,075,000	9,000	.8
Canada	2,500,000	725,000	1,775,000	245.0
Egypt	543,000	555,000	*12,000	*2.1
France	245,000	245,000	.....	....
§Austria	.....	83,000	83,000	....
Others	620,000	339,000	281,000	82.9
Total	977,344,486	985,397,867	*8,053,381	*.82

*Decrease. †Including Brunei and Sarawak. ‡Includes Burma. §Included with Germany in 1938.

Efforts for Stabilization Reduce Completions in First 6 Months

By JAMES McINTYRE

While there was a decline of 1,584 in completed wells in the United States in the first half of 1938 compared with the same period last year, and a drop of 1,411 in the number of oil wells completed, it was not because of a lack of places to drill where oil might have been found.

The decline may be assigned to the one cause: Fear of overproduction that might bring disastrous cuts in the price of crude oil.

A tense situation prevailed all through the half year, but the industry got through it without serious disturbance to the trade balance. Operators slowed down their field work, but much of the credit for maintaining a living crude price may be given to buyers of oil, who were willing to pay the producers a price from which they could make a profit, but were loath to add high-priced oil to their crude stocks. Producers and buyers alike worked admirably with the state conservation commissions in trying to maintain a balance between supply and demand, and with the exception of the Pennsylvania Grade fields and a few small pools the prices that prevailed on January 1 were carried through the half year. The Pennsylvania Grade fields fared the worst in the matter of price cuts, and while that grade of oil continued to be the highest priced crude in the world, it was 40 cents lower per barrel at the close of the half year than on New Year's day.

The average initial production of the 9,721 new oil wells was 369.25 bbls. per day, as against an average of 346.88 bbls. for the 11,132 oil wells brought in in the first half of last year.

Important discoveries of 1937 were developed conservatively this year, with few exceptions, and a large number of new pools were opened in the most important producing states. These, too, were, as a rule, developed cautiously. The big purchasers of crude oil, already oversupplied, were sometimes slow in instructing their pipe line divisions to connect with new leases, which fact left some producers with big wells temporarily without a market in fields where large flush wells were the rule.

A feature of the half year was the big movement of oil men eastward from the Mid-Continent and Coastal fields into Illinois, Michigan and Western Kentucky. In Illinois 524 wells were completed as against 67 in the same period last year. Nine new pools were opened in the state and assurance was given that Illinois will be an active wildcatting area for years. The discovery of a prolific pool in Henderson County in Western Kentucky was followed by a rush into that area, and the opening of pools in Michigan resulted in more wells drilled this year than in the same period in 1937. This back-east movement began last year but it increased in the first half of this year. The Michigan and Illinois fields, nearer the big market than Kansas and Oklahoma fields, affected the production of the two more westerly states by taking away a portion of their respective markets.

Kansas completed 260 fewer wells and Oklahoma completed 545 fewer wells than in the first half of 1937, and this decline may be traced partly to the Illinois development. The increase in completions in North Central Texas and the increase in the number of new oil wells and the large increase in average initial production per well, as set forth in the accompanying table was largely attributable to the great activity in the K.M.A. deep sand in Wichita County, which, while it was a discovery of years past, was not developed on a large scale until the last half of 1937 and the first half of this year. North Central Texas, especially the North Texas or Wichita Falls area, stood out as far as completed work is concerned, as it was the only producing division in the Lone Star state that showed a gain in field work.

West Texas operators developed the Permian Basin area with commendable conservatism and the big Southwest Texas district declined 317 in number of wells completed. A marked falling off was noted in the Eastern Texas territory, but it was outside the East Texas field, where operators continued to punch holes in the earth and to bring in good wells. A total of 1,113 wells was the completion in the East Texas field.

California had a very busy half-year and increased its completions by 49 and its average initial production per well from 217.02 bbls. in the first half of last year to

(Contined on Page 77)

Summary of Completed Work in All Fields of the United States in First Six Months of 1938 and in Same Period of 1937

	First 6 mos.	Comp.	Init. prod. (bbls.)	Dry holes	Gas wells	Oil wells	Av. init. prod. (bbls.)
Eastern Fields	1938	2,068	9,928	169	329	1,570	6.32
	1937	2,845	5,037	174	394	2,277	2.21
Central Ohio	1938	211	163	51	157	3	54.33
	1937	286	137	85	196	5	27.40
Michigan	1938	454	69,605	174	13	267	260.69
	1937	445	167,932	140	46	259	648.39
Lima	1938	16	209	3	5	8	26.12
	1937	38	237	10	9	19	12.47
Indiana	1938	64	294	32	16	16	18.38
	1937	58	152	31	9	18	8.50
Kentucky	1938	409	9,987	131	69	209	47.78
	1937	223	5,761	41	42	140	41.16
Alabama	1938	3	0	3	0	0	....
	1937	1	0	1	0	0	....
Mississippi	1938	13	0	11	2	0	....
	1937	12	0	10	2	0	....
Illinois	1938	524	122,620	106	4	414	296.19
	1937	67	7,119	20	3	44	161.80
Kansas	1938	858	422,954	232	42	584	724.24
	1937	1,118	723,138	264	34	820	881.87
Oklahoma	1938	871	117,654	276	64	531	221.57
	1937	1,416	408,156	361	61	994	410.62
N. Central Texas	1938	1,541	482,989	526	22	993	486.39
	1937	1,371	114,753	609	25	737	155.70
West Texas	1938	1,220	854,727	174	10	1,036	825.03
	1937	1,341	1,043,888	127	5	1,209	863.43
E. C. and E. Texas	1938	1,222	73,836	93	13	1,116	66.16
	1937	1,384	111,243	82	8	1,294	85.96
E. Texas Border	1938	80	24,530	9	3	68	360.74
	1937	180	66,302	17	13	150	442.01
Texas Panhandle	1938	325	125,994	14	55	256	492.16
	1937	335	125,292	13	66	256	489.42
Gulf Coast, Texas	1938	671	227,232	133	17	521	436.14
	1937	760	251,265	159	35	566	443.93
Southwest Texas	1938	1,249	132,081	351	58	840	157.24
	1937	1,566	192,610	424	73	1,069	180.18
North Louisiana	1938	309	120,360	56	44	209	575.88
	1937	277	56,040	60	41	176	318.41
Gulf Coast, Louisiana	1938	239	60,573	88	4	147	412.06
	1937	214	70,302	76	4	134	524.65
Arkansas	1938	126	77,620	22	1	103	753.60
	1937	65	7,062	41	1	23	307.04
Montana	1938	41	1,688	12	4	25	67.52
	1937	86	6,616	18	9	59	112.12
Wyoming	1938	77	23,759	19	12	46	516.50
	1937	53	25,528	15	3	35	729.38
Colorado	1938	7	507	4	1	2	253.50
	1937	7	840	6	0	1	840.00
New Mexico	1938	266	97,030	30	7	229	423.71
	1937	349	355,289	29	11	309	1,180.33
Nebraska	1938	1	0	1	0	0	....
	1937	2	0	2	0	0	....
Utah	1938	2	0	1	1	0	....
	1937	1	0	1	0	0	....
California	1938	671	533,089	138	5	528	1,009.64
	1937	622	116,755	74	10	538	217.02
First six months	1938	13,538	3,589,429	2,859	958	9,721	369.25
First six months	1937	15,122	3,861,454	2,890	1,100	11,132	346.88
Difference	....	1,584	272,325	31	142	1,411	22.37
First six months	1936	11,706	3,123,904	2,535	813	8,358	373.76
First six months	1935	10,329	2,394,274	2,328	644	7,357	325.44
First six months	1934	8,292	2,430,413	1,942	528	5,822	417.45
First six months	1933	4,972	1,464,260	1,634	381	2,957	495.16

First Half of 1938 Witnessed Potent Efforts to Curtail

By JAMES McINTYRE

Production in the United States in the first half of 1938 fell off 22,109,381 bbls. from the total of the same period last year. The first half of 1937 saw a production of 619,160,867 bbls., while the crude output of the first half of 1938 was 597,051,486 bbls. Of this quantity 75 pools produced 380,283,612 bbls., and all the other fields were credited with 216,767,874 bbls. In the first half of 1937 the same 75 fields produced 407,860,755 bbls. while all other pools were responsible for 211,300,112 bbls.

The decline in production was not natural. It was brought about by producers and purchasers of crude for the purpose of keeping production as close as possible to industrial requirements. The one large producing state to greatly increase its production was California which made a gain of 16,133,134 bbls. or from 112,070,297 bbls. to 128,203,431 bbls. The increase in the Wilmington field of 13,230,648 bbls. was responsible for most of the gain, while Santa Maria's increase of 1,518,541 bbls. and El Segundo's increase of 1,870,774 bbls. added to that of Wilmington were more than sufficient to equal the general increase in the state. California was the only one of the large producing states in which the law of supply and demand was given little consideration, but notwithstanding the big increase in production over early last year, producers weathered it without any price cuts.

In Kansas, Oklahoma and Texas successful efforts were made each month to keep surplus oil stored in its natural reservoir, rather than in tanks above ground. The various state commissions with authority to regulate production cooperated with the industry in maintaining a healthy condition throughout the period and into the big consuming season.

Production in Texas was cut from 249,892,199 bbls. in the first half of 1937 to 230,619,098 bbls. in the first six months of this year, a decline of 19,273,101 bbls. Oklahoma reduced its output from 113,908,732 bbls. to 87,741,228 bbls. or 26,167,504 bbls. Kansas dropped from 34,325,834 bbls. to 29,398,746 bbls. or a decline of 4,927,088 bbls.

On the other hand Louisiana increased its production 2,141,373 bbls.

Arkansas made a great comeback in production and its total of 8,508,090 bbls. was 3,577,837 bbls. more than in the first half of last year and the largest production for the same period since 1931. The new Schuler field and the Miller County end of the Rodessa field were largely responsible for the increase.

Illinois and Michigan also increased

PRODUCTION UPS AND DOWNS

	First six months 1938 (bbls.)	First six months 1937 (bbls.)
California—		
Coalinga	2,137,714	2,828,101
Kern River	2,470,626	2,779,354
Kettleman Hills	14,012,558	14,286,436
Midway-Sunset	12,328,137	12,839,622
Mountain View	2,292,743	3,683,129
Mount Poso	3,511,415	3,129,810
Ventura Avenue	6,606,645	6,206,433
Santa Maria	2,898,429	1,379,888
Coyote	2,265,950	2,162,382
Dominguez	5,094,448	4,450,563
Huntington Beach	6,129,143	6,649,145
Inglewood	2,826,301	2,588,709
Long Beach	10,443,758	11,117,085
Santa Fe Springs	6,860,694	8,009,460
Elk Hills	1,981,090	1,789,873
Belridge	2,831,832	3,160,395
Round Mountain	3,003,837	2,120,015
Wilmington	16,877,932	3,647,284
El Segundo	2,633,325	762,551
New Mexico—		
Hobbs	2,650,065	3,969,892
Eunice	4,590,642	5,638,057
Monument	4,897,969	5,092,228
Wyoming—		
Salt Creek	2,856,394	3,005,116
Lance Creek	2,123,482	2,152,983
Oklahoma—		
South Burbank	2,069,881	2,879,477
Nowata	2,117,310	1,597,904
Seminole field	8,944,440	11,846,132
St. Louis-Pearson	3,381,113	3,937,440
Fitts	9,655,171	15,766,507
Cushing-Shamrock	1,891,931	1,891,526
Oklahoma City	20,515,307	28,258,874
Lucien	1,819,928	2,619,195
Crescent	995,913	2,256,346
Edmond	1,136,600	3,562,297
Moore	954,863	2,052,066
Michigan—		
Buckeye	4,588,777	1,984,689
Texas—		
McCamey	2,547,161	1,963,107
Church-Fields-McElroy	1,007,552	2,089,376
Chalk-Roberts	2,567,489	3,058,405
Yates	3,246,246	5,562,046
South Ward	1,910,244	2,766,951
Thompson	1,876,901	2,026,184
Hendrick	2,042,721	2,184,866
Goldsmith	2,074,035	1,011,054
Government Wells	2,145,449	2,831,213
Loma Novia	2,473,281	3,161,105
Barbers Hill	1,773,560	2,390,816
Conroe	5,940,383	7,743,319
Greta	1,295,004	2,560,751
Van	2,913,951	6,321,393
East Texas	74,877,468	83,318,369
Pampa	5,318,534	6,678,029
Borger	3,878,095	3,693,285
Wheeler County	1,087,892	2,116,046
Anahuac	1,390,525	2,314,030
Hastings	3,419,873	2,182,896
Tomoconnor	2,092,853	1,861,773
Plymouth	2,284,770	2,369,575
Saxet	6,003,199	5,730,128
Kermit	2,860,779	3,384,930
Talco	4,582,809	4,096,148
K.M.A.	2,152,811	359,474
Louisiana—		
Rodessa (La.-Tex.-Ark.)*	14,770,519	16,472,203
New Iberia	2,484,591	154,697
Caillou Island	3,292,550	3,137,060
Iowa	2,866,012	3,069,189
Gillis	1,661,363	2,847,362
Hackberry	1,351,885	2,254,724
Jennings	3,256,812	788,505
Lafitte	2,849,441	1,998,952
Arkansas—		
Smackover	3,253,248	3,405,721
Schuler	2,404,293	67,226
Pa.-N. Y.—		
Bradford-Allegany	9,701,573	9,819,612
Kansas—		
Silica	2,384,090	3,397,723
Trapp pools	1,928,975	1,688,456
Burrton	1,918,312	2,883,092
Total 75 fields	380,283,612	407,860,755
Other fields	216,767,874	211,300,112
Total	597,051,486	619,160,867

*Rodessa produced 7,459,294 bbls. in Louisiana, 5,917,681 bbls. in Texas and 1,393,534 bbls. in Arkansas.

Summary of Crude Production in United States First Six Months of 1938

	1931 prod. first 6 months (bbls.)	1932 prod. first 6 months (bbls.)	1933 prod. first 6 months (bbls.)	1934 prod. first 6 mos. (bbls.)	1935 prod. first 6 mos. (bbls.)	1936 prod. first 6 mos. (bbls.)	1937 prod. first 6 mos. (bbls.)	1938 prod. first 6 mos. (bbls.)	No. of oil wells producing June 30	Av. daily prod. per well (bbls.)
New York	1,637,000	1,832,000	1,484,000	1,779,000	2,070,000	2,220,000	2,231,000	2,605,000	13,900	1.04
Pennsylvania	5,465,000	6,427,000	5,934,000	7,764,000	7,977,100	8,043,000	9,132,000	9,169,000	79,720	.63
Ohio	2,811,000	2,357,000	2,067,000	2,086,000	2,064,000	1,919,000	1,765,000	1,636,000	31,950	.28
West Virginia	2,210,000	1,996,000	1,732,000	2,013,000	1,994,000	1,901,000	1,909,000	1,877,000	13,020	.80
Kentucky	3,176,000	2,994,000	2,216,000	2,098,000	2,647,000	2,648,000	2,750,000	2,645,000	14,015	1.04
Michigan	1,511,000	2,950,000	2,730,000	5,325,000	7,013,012	6,522,837	6,934,784	9,745,025	1,913	28.14
Indiana	409,000	437,000	300,000	400,000	370,000	380,000	397,000	436,000	1,460	1.65
Illinois	2,283,000	2,610,000	1,764,000	2,283,000	2,062,000	2,126,000	2,358,000	7,807,255	12,900	3.34
Kansas	20,070,775	17,902,544	19,257,576	22,462,228	26,339,919	27,053,492	34,325,834	29,398,746	20,993	7.74
Oklahoma	95,838,677	77,113,805	80,157,672	91,123,782	91,029,607	97,707,445	113,908,732	87,741,228	54,825	8.84
North and Central Texas	15,029,694	13,544,129	12,991,033	16,036,425	16,327,288	16,635,792	18,858,383	18,704,088	23,814	4.34
West Texas	40,690,647	32,807,924	29,228,785	24,094,946	26,471,269	29,831,964	36,518,530	33,685,232	8,537	21.80
Texas Panhandle	10,092,312	9,124,081	8,196,618	9,590,219	11,025,590	11,236,648	14,000,039	11,638,141	3,875	16.59
East Central Texas	8,877,881	9,982,024	10,338,363	8,494,287	9,023,965	9,034,861	21,302,629	17,044,342	3,284	28.68
East Texas	31,532,184	60,752,039	103,604,436	90,653,119	86,351,888	85,066,114	83,318,369	74,877,468	25,338	16.33
Gulf Coast-Texas-Louisiana	31,422,135	24,551,304	34,174,761	38,025,163	51,198,970	68,541,235	88,072,426	88,360,889	10,230	47.72
Southwest Texas	13,563,721	11,094,330	10,215,027	9,276,727	10,271,241	13,951,042	18,601,487	18,528,593	8,377	12.22
Arkansas	8,649,636	6,309,267	5,556,924	5,584,605	5,604,691	5,439,422	4,930,253	8,508,090	2,852	16.48
North Louisiana	7,227,389	5,269,165	5,235,949	4,806,844	4,179,084	12,070,265	13,627,403	14,328,785	3,506	22.58
Wyoming	7,814,930	6,602,252	5,537,278	5,802,926	6,349,226	6,454,110	9,832,294	9,024,307	3,675	13.57
Montana	1,501,846	1,196,703	1,075,239	1,399,599	1,933,704	2,683,543	2,961,228	2,424,600	1,753	7.64
Colorado	758,242	614,793	454,502	500,418	799,844	793,939	761,587	670,025	194	19.08
New Mexico	7,522,672	6,610,435	6,386,350	7,851,605	9,429,807	12,344,519	18,594,592	17,960,241	2,229	44.52
California	95,675,449	90,944,073	84,407,535	86,459,456	91,134,085	108,160,769	112,070,297	128,203,431	13,533	52.34
Miscellaneous*	4,000	2,000	1,000	4,000	.....	.....	.....	33,000	....	....
Total	415,774,190	396,023,868	435,046,048	445,914,349	473,667,290	532,764,997	619,160,867	597,051,486	355,893	9.27

*Miscellaneous includes Tennessee, Utah and Missouri.

VISCO
Look for the Blue Barrels
VISCO
VISCO PRODUCTS COMPANY, INCORPORATED · HOUSTON, TEXAS

their production, the first named state having gone from 2,358,000 bbls. in the first half of 1937 to 7,807,255 bbls. in the first half of this year, an increase of 5,449,255 bbls. Michigan gained 2,810,241 bbls. over the same period last year, its total this year having been 9,745,025 bbls. New York and Pennsylvania showed some gain. All the Rocky Mountain states experienced declines. New Mexico held strictly to proration orders and its production of 17,960,241 bbls. was 634,351 bbls. less than in the first half of last year.

The total number of oil wells in the country increased from 345,478 to 355,893, but the average production per well fell from 9.91 bbls. per day to 9.27 bbls. per day. California had the largest average per well, 52.34 bbls. per day, followed by New Mexico with 44.52 bbls. per day. The Gulf Coast of Texas and Louisiana averaged 47.72 bbls. per day.

The most interesting development of the year was that in Illinois. Recent big wells in the shallow Benoist sand in Marion County bear out the belief of long experienced operators that the sand named will be the objective of most of the operators in that state from this time on. The head of one of the large companies operating in Illinois, which company is also a prominent producer in Oklahoma and Kansas, told the writer recently that the resemblance of the Benoist sand to the Burbank pay of Oklahoma led him to believe that big production would be found in wells drilled to the Benoist pay. Up to that time nothing larger than a 500-bbl. initial producer had come from the Benoist sand. His prophecy was borne out in July when the Texas Co.'s second well in the new Tate pool in Marion County came in good for 1,400 bbls. a day.

The Illinois Basin has hardly been scratched by the development of the past 18 months. The large area, about half of the whole state, will continue to be the scene of wildcatting for years, regardless of results this year. There are more wells drilling there now than at any time since exploration began, and the state is producing more oil than in any year since 1915, when the field was only nine years old as a large producer. The peak year's production in Illinois was 33,686,000 bbls. in 1908, an average of close to 92,300 bbls. per day, for which producers were paid an average of only 67 cents per barrel, or an average of about $61,841 per day. The current week's production of 54,599 bbls. per day brought the producers about $72,500 per day, so it is safe to assume that from an income standpoint this year will exceed that of the year of the state's greatest production.

Another interesting new field, and a product of this year's exploration, is Birk City, in Henderson and Daviess counties, Kentucky, the limits of which no one yet knows, and lying between Birk City and the similar deep sand fields in Illinois is a large part of the Coal Basin in Indiana which has been subjected to a gigantic leasing campaign, but which has not yet received much attention from the companies owning the leases. It offers a great field for the wildcatter.

West of the Mississippi River and east of California there were no pools opened this year that assure very large production. Many discoveries were made, most of them of average, or smaller, potentiality.

WORLD OUTPUT

(Continued from Page 73)

exploration program which is being carried on this year with renewed vigor since settlement of the labor difficulties late last year.

Bahrein Island production registered another increase, moving forward from 3,856,000 bbls. the first half of 1937 to 4,225,000 bbls. the first six months this year.

As in similar periods Poland's crude production declined slightly. The country continues to suffer from lack of new discoveries and the normal decline of old fields. As pointed out in a recent issue of The Oil and Gas Journal, Poland is now offering special inducements to investors in oil properties in an effort to check the decline. Changes were slight in Japan, Ecuador and Egypt, but Canadian production increased almost three fold over 1937 as a result of extensive development during the last half of 1937 and the first half of this year in the Turner Valley field.

The decline in Egyptian crude-oil production probably will be arrested during the next six months since preparations were nearly completed in July for shipping 1,000 bbls. of crude per day out of a new field discovered in the northern part of the country.

The increase from 339,000 to 620,000 bbls. in countries classified as "others" was due largely to Hungary and Albania. The two countries are currently estimated to be producing about 2,500 bbls. per day as the result of European Gas & Electric's discovery late last year in Hungary and increased activity by the Italian government in Albania.

COMPLETIONS

(Continued from Page 74)

1,009.64 bbls. this year. The big Wilmington field in Los Angeles Basin was largely responsible for this. Discoveries of this year in California were led by the Wasco, Guijarral Hills and Lomita fields, and a deep zone in the Greeley field in Kern County.

In Central Texas 11 new producing areas were opened in Shackelford, Haskell, Eastland, Jones, Callahan, Stephens and Runnells counties. Three producing spots were opened in East Central Texas.

In the Texas Panhandle an oil discovery in Carson County, 6 miles southwest of the Pampa field, and new gas fields in Gray and Sherman counties, comprised the discoveries. The oil-discovery well started at 484 bbls. per day.

Eleven new pools were opened in the West Texas area, Pecos, Crockett, Yoakum, Crane, Gaines, Cochran, Ector and Andrews each figuring in one or more discoveries. The largest discovery well was in Yoakum County, 4½ miles northwest of the Denver pool. It started at 566 bbls. per day. The north end of the basin showed the greatest wildcatting activity. Some of the pools opened this year may prove to be extensions to other fields or may connect pools on either side. It will be recalled that the Wasson and Denver pools were miles apart, Wasson being in Gaines County and Denver in Yoakum County. Outpost wells have joined these pools into one, called the Wasson field. The Jordon and Waddell pools were linked this year, and other pools were extended.

The big development in the K.M.A. pool, in Wichita County, and the discovery of a similar deep Strawn pay in the Panther pool in adjoining Archer County, were outstanding features. Thirty thousand proven acres were added to the K.M.A. field by the 458 new oil wells drilled this year. On July 1 it was estimated K.M.A. was an 80,000-acre field, being exceeded in size only by Bradford, in Pennsylvania, and the East Texas field. Pools were opened in Cooke, Wilbarger, Jack and Archer counties in the half year.

The Gulf Coast district of Texas and Louisiana had 15 new pools, 6 of which were opened in Texas and 9 in South Louisiana. The deepest producing well in the world was also a product of the first half of this year, Fohs Oil Co. No. 1 Buckley-Bourg, in the Bulac pool, Terrebonne Parish, Louisiana, which produces distillate through casing perforations from a Miocene pay at 13,254-56 feet. The most important discovery on the Texas Coast appears to have been the Fairbanks field in Harris County, a 675-bbl. well having opened this pool from the Upper Saline Bayou formation at 6,838-52 feet. The first wildcat drilled in the Gulf of Mexico resulted in the Creole field off the Cameron Parish, Louisiana, shore.

In the face of a falling off in field work in Southwest Texas, the first half of this year was marked by the opening of 23 pools and the expansion of several older fields, either by extensions or by new pay sands. Jim Wells and Duval counties figured largely in the discovery of fields, but Zapata, Starr, Jim Hogg, Hidalgo, San Patricio, Nueces, Bee, Victoria, Refugio, Live Oak, Bexar, Burleson, Caldwell, Guadalupe and Medina counties all took part in enlarging the southwestern Texas oil and gas area.

Twelve oil pools and seven gas fields were opened in Oklahoma, led by an 11,000-bbl. discovery well that opened the Ramsey pool in Payne County. Okfuskee, Seminole, Okmulgee, Muskogee, Garfield, Garvin, Hughes, Texas and Murray counties were the scenes of either oil or gas discoveries.

Thirty-one wildcats in Kansas opened oil and gas fields in Ellis, Pratt, Ness, Russell, Sumner, Barton, McPherson, Rice, Sedgwick, Ellsworth, Chautauqua, Reno, Stafford, Graham, Cowley and Finney counties. The Schroeder pool in Ellsworth County was opened by a 2,644-bbl. well; Letsch extension in Russell County by a 1,635-bbl. well; Morel pool in Graham County by a 2,105-bbl. well; Sittner pool in Stafford County by a 2,221-bbl. well. The discovery well in the Foster pool in Russell County started at 1,220 bbls., and the Trapp outpost in Russell opened with 1,029 bbls. per day.

In the Rocky Mountain district two oil discoveries were made in Wyoming, one of which was important. This was a pool in the Cole Creek structure 9 miles northwest of the Big Muddy field and 14 miles northeast of Casper. A 55,000,000-foot gas well opened a gas field 12 miles north of the Big Medicine Bow oil field. A smaller gas discovery was made in Fremont County. Pool extensions were features of work in Montana and New Mexico.

East of the Mississippi River, Illinois, Michigan and Kentucky figured prominently in the discovery of new pools. Three pools were found in Michigan, Edenville in Midland County and Monterey and Dorr in Allegan County. The Salem pool in Allegan County was expanded.

In Illinois, nine pools were opened in Clay, Marion, Richland, Jefferson and Wayne counties. The most important of these was the Tate pool in Marion County opened on a 30,000-acre block of the Texas Co. The discovery well, in section 5-1n-2e, started at 732 bbls. from the Benoist sand, but the second well in the pool opened after the close of the half year was good for 1,400 bbls. a day. This is the largest Benoist sand production per well in the Central Basin development.

The Birk City pool in Henderson County, western Kentucky, was opened in April by Hoosier Drilling Co. with a 1,200-bbl. well in McClosky lime. When this was written late in July a score of oil wells had been completed and the field had extended across the Green River into Daviess County.

Two Smackover lime fields were opened in Columbia County, Arkansas, one near the town of Magnolia and the other near Village. The Schuler field in Union County was extended and the deep sand given a lively development resulting in wells of good production.

In North Louisiana, the Cotton Valley deep sand development was most important. The shallow Blue Lake field was brought back to life by deep sand discoveries and the Logansport gas field in De Soto Parish, Louisiana, and Shelby County, Texas, was extended. Sixty-one wells were completed in the Jefferson-Lodi area on the East Texas border area.

Altogether the results of drilling this year were satisfactory. Nothing was discovered that threatens to upset the industry, but very appreciable additions to the oil reserves of the country were made.

Refinery Expansion

Start Operating Refinery in Chicago Switching District

CHICAGO, July 21.—The Worth Refining Co. expects to start operating this week its 1,500-bbl. refinery located 1 mile west of Blue Island in the Chicago Switching district. Headquarters of the company will be at 624 South Michigan Avenue. Operations and sales will be in charge of T. F. Thompson, formerly of Chicago Oil Marketing Co., president, and George E. Phoenix, formerly of Industrial Petroleum Corp., vice president.

The plant includes vacuum distillation and will produce gasoline, kerosene, burning oils and fuel oils. Crude of 40 gravity and sweet will be received by tankcar for processing.

McColl-Frontenac Oil Co. Considers Building Canadian Refinery

CALGARY, Alberta, July 23.—Plans for the expansion of the McColl-Frontenac Oil Co. to serve the Canadian West were foreshadowed by J. M. Pritchard, vice president, on a visit to Calgary. Mr. Pritchard, in company with H. H. Bradburn, vice president, of Winnipeg, and A. F. Campo, general sales manager for Canada, spent several days investigating the Alberta oil situation.

It was intimated that the company would interest itself to some extent in the development of crude production in Turner Valley; and with an assured supply, construction of a refinery at Calgary at a cost in excess of $1,000,000 would be undertaken, possibly in 1939. A refinery with a daily crude capacity of around 2,000 bbls. was contemplated, and would represent the key feature of the entry of the McColl-Frontenac company into the Alberta oil industry on a major scale. Distribution warehouses and service stations would also be erected in the more important prairie communities.

The McColl-Frontenac Oil Co. now has refineries at Toronto and Montreal, and has developed some crude production in Trinidad. Steps are being taken to transfer the head office from Montreal to Toronto, though the company's business will continue to be directed from the former city. The Texas Corp. recently acquired a substantial interest in the McColl-Frontenac company.

The company's Toronto and Montreal refineries have a combined capacity of 23,000 bbls. of crude daily, and sales of all products in 1937 amounted to 147,000,000 gallons. Marine terminal storage plants are operated at Halifax, St. John, Three Rivers and Quebec, as well as at seven ports on the Great Lakes; and the company's properties in Canada include 178 branch warehouses and bulk plants for wholesale distribution and 430 service stations.

Clearing Site for Refinery South of K.M.A. Field

FORT WORTH, Tex.—Cargo Oil Corp. of Wichita Falls, Tex., and New York City is clearing ground for the construction of a 1,500-bbl. refinery at Mankins townsite, 4 miles south of the K.M.A. field. The plant will consist of a high-pressure tube-still and auxiliary equipment for the manufacture of gasoline, diesel fuel, wax distillates and fuel oil. The company is headed by George Goldwin, formerly operator of the Archer Oil & Refining Co. at Mergargal, Tex. The plant is to be finished early in September.

Two Small Polymerization Units Process Large Quantities of Gas

CHICAGO, July 25.—The operation of two small catalytic polymerization units has been watched with interest by the refining industry and yield data indicate both substantial increases in total gasoline recovery and higher over-all gasoline octane values. The refineries in which these units are located are those of McClanahan Refineries, Inc., at St. Louis, Mich., and Leonard Refineries, Inc., at Alma, Mich.

The McClanahan unit is daily processing 270,000 feet of cracked gas produced by the company's 1,100-bbl. a day Dubbs reforming unit. It is producing 2,600 gallons a day of polymer gasoline, having an octane rating of 83 and a blending value of 100. The combination of polymerization with reforming is increasing the yield of gasoline from the Michigan crude by 7 per cent.

The Leonard polymerization unit started up on June 22 and is still running. It is daily processing 150,000 to 175,000 feet of cracked gas from the Dubbs 1,100-bbl. a day, two-coil, selective cracking unit. It is making about 1,500 gallons a day of polymer gasoline similar in characteristics to that made by McClanahan, and is increasing the yield of gasoline from cracking by 3¼ per cent.

The difference in yield increase between the McClanahan and the Leonard units is due to the fact that McClanahan is using the polymerization operation primarily to step up yield, while Leonard is using it primarily to improve octane number.

Inland Empire Will Start Construction of Refinery

SPOKANE, Wash., July 25.—Construction will soon begin on the 2,500-bbl. refinery of the Inland Empire Refining Co. Plans were announced for the erection of the plant several months ago but actual construction

Natural Gasoline

Natural Gasoline Association Announces Convention Date

The Natural Gasoline Association of America will hold its 1939 convention at the end of the week in May immediately preceding the convention of the American Gas Association. As in the past, the gasoline association will hold its meeting in Tulsa.

Union Oil Begins Operation of New Rio Bravo Gasoline Plant

Union Oil Co. has begun operation of the new absorption plant built to handle the gas output of wells in the Rio Bravo field, near Shafter in Kern County.

The plant represents a capital investment of about $500,000 and will treat 20,000,000 feet of gas daily, which will be furnished by wells in the Rio Bravo field. Wells already drilled are capable of running the plant to capacity but due to curtailment, the absorption plant at present is treating only 5,000,000 feet of gas, with a 3,000-gallon yield of natural gasoline daily. No gas is being sold at present, all dry gas being used in the field for drilling purposes. The natural gasoline output is being transported by truck and trailer to Union's Maltha refinery, near Bakersfield.

The single-unit plant is of the latest type design and was built jointly by Union Oil Co. and Superior Oil Co., although it will be operated by Union. It is located on a site leased from the Kern County Land Co. near Union's discovery well in section 34-28-25. The plant covers 2 acres and provisions were made in construction to allow for expansion of the plant to three times its present size.

Direct-fired heaters, instead of steam, are used in the plant and all low-pressure gas is compressed by two of the latest angle-type compressors and treated at 500 pounds pressure. When gas is marketed, it will be available at 500 pounds pressure.

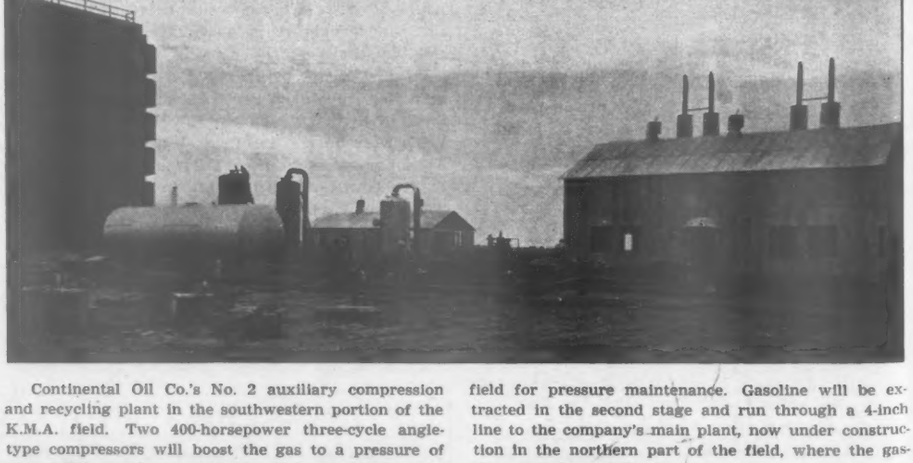
Ask Return of 1937 Gasoline Association Booklets

W. F. Lowe, secretary of the Natural Gasoline Association of America and secretary of the affiliated Natural Gasoline Supply Men's Association, has asked member companies of both organizations to return to him any extra copies of the 1937 Technical Manual. There is a demand for the booklets which cannot be filled by the assoication office. At a meeting of the officers of the Supply Men's association early in the month it was decided not to publish a 1938 edition of the booklet but plans were made to assemble a similar booklet for 1939.

Distribute Proceedings of 1938 Meeting of Association

In the past week copies of the proceedings of this year's convention papers and discussion were mailed to all registrants of the 1938 meeting of the Natural Gasoline Association of America.

BOOSTER UNIT FOR K.M.A. REPRESSURING SYSTEMS



Continental Oil Co.'s No. 2 auxiliary compression and recycling plant in the southwestern portion of the K.M.A. field. Two 400-horsepower three-cycle angle-type compressors will boost the gas to a pressure of over 1,200 pounds at which it will be returned to the field for pressure maintenance. Gasoline will be extracted in the second stage and run through a 4-inch line to the company's main plant, now under construction in the northern part of the field, where the gasoline will be stabilized.

was delayed pending the working out of a labor contract for its construction. The plant is expected to be completed November 1 and thereafter will run oil produced in the Cut Bank field of Montana.

Emby Kaye, manager and in charge of construction, is arranging for the equipment and will have charge of the plant's operation after it is completed.

Natural Gas

Order on Sour Gas Quota Upheld in Federal Court

AUSTIN, Tex., July 25.—The sour gas proration law was upheld Monday by a three-judge federal court which declined to grant F. C. Henderson and others an injunction restraining enforcement of the railroad commission order.

The court held open the case for further review if the commission declined to correct any injustices which experience might show had been done.

Madden Hill, assistant attorney general, believed the opinion might uphold the correlative rights theory.

The operators of sour gas wells attacked both constitutionality of the statute and validity of the order.

"We see nothing in the provision violative of due process," said the judges. "We see in it only a reasonable, indeed, almost a necessary exercise of the police power to protect owners of wells, whose unrestricted right of capture the statute has lawfully invaded, in order to protect the gas reserves from dissipation in inferior uses, from having their gas drained away by the disproportionate takings of other owners from the reservoir."

In upholding the orders of the commission, the court said:

"We find nothing unreasonable in the statute, nothing unreasonable in the orders. All that the statute does, all that the orders do, is to make limitation and proration effective by putting an end to an existing unreasonable drainage condition, and preventing its continuance in the future. Neither the statute nor the order operates retrospectively, either punitively or reparatively; both operate prospectively. So operating, they merely say to plaintiffs, 'You may produce from your wells, of the total amount limited, in due proportion with every other well in the field. You may not produce more.'"

Henderson and others, owners of a gasoline-manufacturing plant in Sanford and of casinghead gas contracts as well as leases, contended they had a contract for the delivery of gas to the Combined Carbon Co. carbon black plant, and the commission order reduced the amount they could take from their wells below their requirements.

The commission's contention, upheld by the court, was that the operators had produced all of the gas originally underlying their land and no injury was shown by the restriction.

The statute limits to 750,000,000 feet the gas which may be withdrawn per day for carbon black manufacture, but the order limited it 690,000,000 feet. The power to limit to the demand was affirmed.

Reasonableness of the proration order allocating two-thirds of production to the product of acreage times pressure and one-third to the potential factor was termed the only real issue. The court observed the commission considered various formulas "and that one was adopted because it appeared most equitable and just in prorating production from the future as the statute provides, over the wells in the field." The presumption of validity was not overcome, the court said.

"For the fact if it be a fact," the court stated, "that a better formula could be found for prorating the production among wells in the field, than the commission used, is not ground for an injunction."

Dual Line at Detroit

Keystone Oil Refining Co., Detroit, Mich., is laying two half mile 8-inch crude oil lines from the Rouge River to its Detroit plant. Olympia Welding Works, Detroit, operated by H. T. and J. E. Decker, formerly of Tulsa, has charge of the electric welding.

Pipe Line Activity

Coal Association Protests Proposed Mesabi Line

WASHINGTON, D. C.—The National Coal Association says:

"The efforts to secure $20,000,000 by a group of promoters to finance a natural gas pipe line from southwest Kansas to the Mesabi Range in Minnesota are by no means abated or slowed down. They have their technical men here attempting to justify the loan. Those who have not expressed themselves to the Reconstruction Finance Corporation, to their congressmen and senators, against this loan should do so now.

"Remember, it is your money they want to borrow. There are rumors here that there are some political promises involved in this deal. This makes it necessary to act quickly."

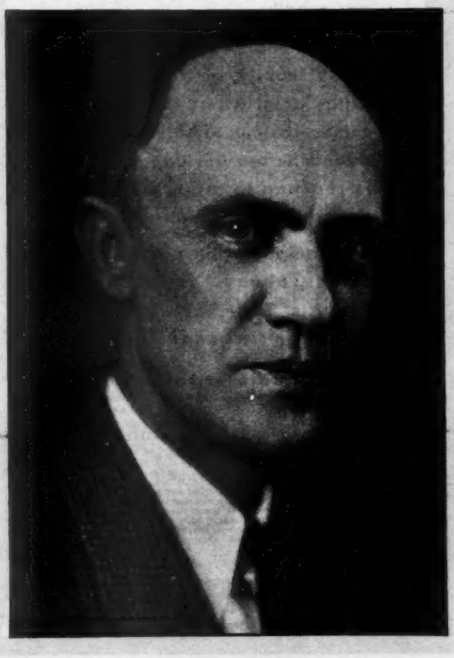
Shell Gasoline Line Operating To Springfield and Lima

Although the permanent facilities for operating the Shell Pipe Line Corp. new gasoline line from Wood River to Toledo are not completed, deliveries are being made at Lima on a branch line to Springfield.

The company is laying a line from its Wood River, Ill., refinery to the Great Lakes at a point near Toledo, Ohio, to provide for water shipments on the Great Lakes. En route it will supply terminals across southern Illinois, central Indiana and northern Ohio.

Bay Leaves Panhandle Eastern; Joins Northern Natural

Directors of the Panhandle Eastern Pipe Line Co. have accepted the resignation of Burt R. Bay, vice president and general manager, who has accepted a post with Northern Natural Gas Co. as executive vice president and general manager. Walton G. Mortland was elected a director to fill the unexpired term of Ashton W. Hawkins.



BURT R. BAY

Panhandle Eastern has contracted with Kentucky Natural Gas Corp. to sell a minimum immediately of 2,500,000 feet of gas daily and a maximum six years hence of 10,000,000 feet daily. The contract, for 15 years, covers substantial additional sales of so-called "interruptible" gas. The Kentucky company will resell the gas to its markets in Indiana and Kentucky.

Panhandle Eastern reports for the 12 months ended June 30, net income of $3,440,440 before provision for tax on undistributed profits. This compares with a net income of $2,970,000 for the preceding 12 months. J. D. Creveling, president, reported at the directors' meeting. Gross earnings for the 12 months ended June 30, were $9,592,500 against $8,190,700 in the corresponding period a year ago, an increase of 17 per cent.

Texas Co. and Carter to Lay Lines in Illinois Field

Texas Co. announced through the Tulsa office that 9 miles of 4-inch pipe will be laid from the field near Salem, Ill., to the Illinois Pipe Line Co. main line near Sandoval, Ill. This line will give outlet to many wells in the Salem field now without connections. Portable pumping units will be used to move the oil along the line from the field and into the pipe line station tanks at Sandoval.

In addition to this work which is to be started at once Texas Co. is having survey made of 55 miles of right of way between Salem and Lawrenceville, Ill., for an 8-inch line and 20 miles additional for a 10-inch line to complete this system. This new system is not yet fully approved but it is contemplated and announcement will be made later when work is to start.

Carter Pipe Line Co. of Illinois announced that a contract has been awarded O. C. Whitaker, Inc., Fort Worth, Tex., to lay about 9 miles of 6-inch pipe line from Brownstown, Ill., station in Fayette County, northeast to the Loudon area. In addition to the 6-inch line 6 miles of 8-inch line are to be laid and two systems joining to serve Loudon field. Portable diesel engine-driven reciprocating pump units will be used to pick up this oil and force it along the line.

Steel Company Gas Line Is Authorized in Pennsylvania

COATESVILLE, Pa.—The Public Utility Commission of Pennsylvania has granted permission to Lukens Steel Co. to construct a gas pipe line into its plant. Some of the coal people feel that this is the beginning of the construction of gas lines through the entire territory and expected ultimately to displace large volumes of coal. The coal operators, through their organization in central Pennsylvania, protested against the extension vigorously.

Sapulpa Gas Co. Sold at Special Master's Sale

The Sapulpa Gas Co. was sold at a special master's sale July 2, to I. E. Nelson of Winfield, Kans., representing first-mortgage bond holders, subject to confirmation by the federal district court at Tulsa. Mr. Nelson bid $8,000 for the plant and system with a franchise to run until 1950 and $124,000 for the concern without franchise. His only competitor was L. B. Jackson, Jr., Sapulpa oil man.

The gas company, which was organized in 1932 and has between 2,000 and 3,000 meters in service, went into trusteeship October 21, 1937, on the petition of holders of about $240,000 in first mortgage bonds. Order of foreclosure was issued June 6 by Federal Judge Franklin E. Kennamer at Tulsa.

Independent oil and gas operators of Creek County indicated intention of joining with the Sapulpa Chamber of Commerce and the city of Sapulpa in protesting the sale. The operators fear a loss of present gas sales.

MANY OF THE MOST COMMONLY EXPERIENCED DRILLING DIFFICULTIES ARE DUE TO THE USE OF IMPROPER DRILLING MUD

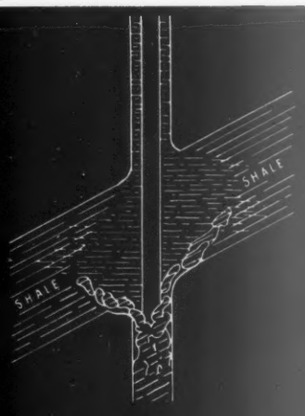
Caving hole, stuck drill pipe, blowouts—these and other difficulties encountered in drilling through heaving or caving shale often can be eliminated by the use of BAROID Products.

AQUAGEL—either used alone with water or as an admixture—builds a thin cake on the walls of the hole and reduces the loss of water to the formation, thus eliminating some of the causes of trouble with heaving shale.

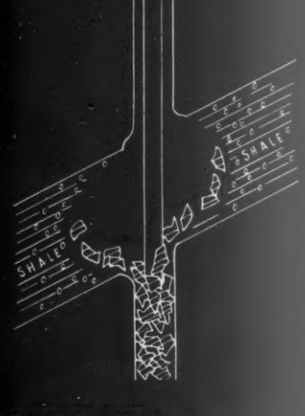
Where weighted muds are required to hold the formation in place or to confine oil, gas, or water to their respective formations, a combination of BAROID and AQUAGEL yields a mud of low viscosity and high unit weight; a mud which is non-corrosive and which will release gas readily.

Since shales frequently raise the viscosity of drilling mud to the point where it easily becomes gas-cut, STABILITE can be added before the danger point is reached to maintain a thin mud and release entrained gas.

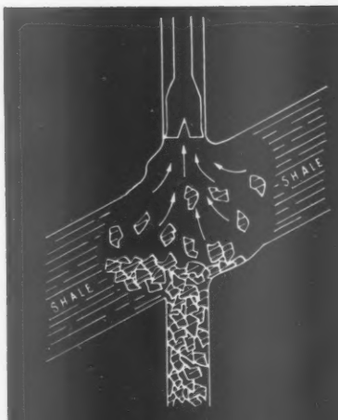
To help prevent drilling difficulties, always use BAROID Products. They have been successful in thousands of wells.



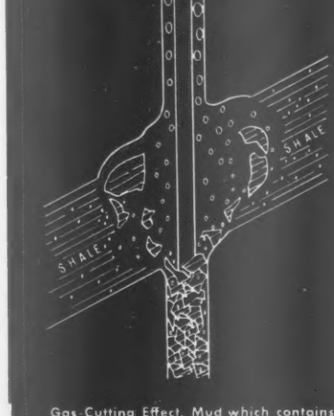
Hydrous Disintegration of Shale. Water from drilling mud causes swelling and disintegration of the shale, forcing it to heave into the open hole. A drilling mud with good wall-building qualities, i.e., low water loss, will help check this cause of heaving shale.



Gas Pockets Which Cause Shale to Heave. Shale impregnated with gas will slough into the open hole unless the drilling fluid has sufficient weight to control the gas pressure.



Swabbing Effect of Drill Pipe. Too rapid withdrawal of drill pipe creates a pressure differential which causes shale to heave into hole. The use of a drilling mud which forms only a thin, but impervious, cake will aid in reducing the swabbing effect.



Gas-Cutting Effect. Mud which contains entrained gas has lost much of the weight necessary to prevent shale from caving. The use of a thin mud which does not readily gas-cut is essential in drilling heaving shales in pressure zones.

BAROID PRODUCTS

BAROID—Extra-Heavy Drilling Mud. • AQUAGEL—Trouble-Proof Colloidal Drilling Mud. • STABILITE—An Improved Chemical Mud Thinner. • BAROCO—An Economical, Salt Water-Resisting Drilling Clay. • FIBROTEX—For Preventing or Regaining Lost Circulation in Drilling Wells.

Stocks carried and service engineers available in all active oil fields. Look for this trade mark under "Oil Well Drilling Mud" in your classified telephone directory for our nearest service engineer and distributor.

BAROID SALES DEPARTMENT

NATIONAL PIGMENTS & CHEMICAL DIVISION OF
NATIONAL LEAD COMPANY
BAROID SALES OFFICES • LOS ANGELES • TULSA • HOUSTON

Development in Shale Oil Reported at Conference

The widespread interest in the development of oil from shale was evidenced by papers presented from many countries at the International Conference on Oil Shale and Cannel Coal held in Glasgow, Scotland, early in June under the auspices of the Institute of Petroleum (formerly the Institution of Petroleum Technologists) and convened by W. H. Cadman. Authorities on this industry from the United States, Canada, Scotland, Estonia, France, Sweden, Brazil, Staffordshire, England, and North Wales, Australia and Czechoslovakia discussed in detail the extraction, retorting and refining of oil shale and cannel coal with special emphasis on the refined products and the expanding possibilities of by-products.

Discussing the refining of shale oil in Scotland, G. H. Smith and W. B. Pantherer said:

"Theoretically hydrogenation is the most efficient way of refining shale oil, and actually yields of 100 per cent by volume and over can be realized. In all other known methods of refining, these troublesome compounds, pyridine bases and phenols, peculiar to shale and coal oils, have to be removed, and incidentally the most active unsaturated hydrocarbons are lost. In hydrogenation, however, the elements, nitrogen, oxygen and sulfur are replaced by hydrogen, and the unstable olefines and diolefines become saturated to the more stable paraffins.

"Scotch shale oil can readily be hydrogenated to motor spirit. Various methods of treating the material are possible, and one method by which yields of slightly over 100 per cent by volume can be realized is briefly outlined.

"The shale oil is first distilled, leaving a residue above the diesel oil range. This residue is hydrogenated in the liquid phase whereby it is converted into 5 to 10 per cent motor spirit and gas oil plus recycle oil. These are separated by distillation, the gas oil blended with the distillate from the topping unit and the blend subjected to hydrogen in the vapor phase. The products of this operation are spirit and re-cycle oil, which are again separated by distillation and the gas oil re-cycled. The benzine produced is water-white, and only requires a caustic-soda wash to make it marketable. The octane number of motor spirit so produced is low—about 51-54."

A. J. Kraemer, U. S. Bureau of Mines, reviewed developments in the United States, and A. A. Swinnerton, engineer, Division of Fuels, Canadian Bureau of Mines, discussed "Oil Shales in Canada."

T. W. Davidson described in some detail his rotary retort which has been in operation in Estonia for a number of years treating oil shale. The Estonian oil-shale deposit occurs in beds with the outcrop in a strike parallel with the south shore of the Gulf of Finland in an unbroken line between Tallinn in Estonia and Leningrad, U.S.S.R. It has a workable depth of face along this line extending over 70 miles. To the south this deposit has been located by bore holes for 25 miles. This gives some idea of the immense size of this deposit which has been worked for about 100 years.

The Estonian oil shale yields 56 gallons of oil per ton when treated at 500° C. In Scotland the cannel coals yield up to 55 or more gallons per ton of coal, while the shales generally yield up to about 35 gallons. In South Africa the torbanite has a rather higher oil content, while the New South Wales shales are even richer. Some of these minerals yield as high as 140 gallons per ton.

Problems in Treatment

With these yields and the lack of petroleum the business of treating oil shales and cannel coals has been carried on successfully in many European countries but where petroleum products are available at relatively low costs these shales and cannels cannot compete. There are many mechanical and metallurgical problems to be solved in the treatment of each type shale or cannel and Mr. Davidson outlined some of these problems.

Dr. Eng. e. h. M. Pier discussed the treatment of shale oil by hydrogenation, stating that all shale oils of medium boiling range, both distillation and liquid phase products, are suitable for the treatment in the vapor phase over fixed catalyst. By refining hydrogenation only the phenols are reduced with practically no splitting of the hydrocarbons, the unsaturated compounds are saturated and sulfur and nitrogen removed, resulting in water-white light stable diesel oils of high cetene numbers. Their pour point is particularly low when asphaltic shale oils are treated, being below —30° C.

There were other papers dealing with the technique of treating shales and cannels, some describing operations in Estonia and others covering Scottish plants. Notably a paper by J. B. Snedden, past president of the Mining Institute of Scotland, and W. Caldwell, and J. Stein, both of the mining department, Scottish Oils, Ltd., in which 75 years of oil shale mining was discussed.

A recent Survey of Scottish Cannel presented by W. M. Cumming and H. B. Nisbet, discussed the geological investigations carried on in various parts of Scotland and gave analysis of yields of crude oil per ton of cannel from various districts.

Other papers dealing with the distillation of pulverized bituminous shales in a special retort erected and operated at St. Hilaire, France, and the utilization of oil shales and cannel coals in connection with the production of synthetic oils were presented and the possibilities discussed.

The production of oils from cannel coals was discussed by J. Jamieson, engineer and manager, City of Edinburgh Gas Department, Scotland, in which he described experiments upon the carbonization of Newbattle cannel in continuous-vertical gas retorts which showed that lump cannel could profitably replace bituminous coal for gas-making purposes. Cannel of good quality contains potentially two or three times as much tar or oil as bituminous coal, and the carbonization of cannel for production of gas could be applied immediately in the existing industry of gas manufacture, the gas and by-products being suitable for existing markets.

Under gas-making conditions, cannel gives about 80 per cent of its potential yield of oil in the form of a thin tar. Even if this tar is valued at as low a price as 2d (4 cents) per gallon, the cost of production of the gas compares favorably with town gas made from bituminous coal. If a higher price can be realized for the tar, the net cost of gas would fall below the normal figure.

Tar may be converted into marketable oils and other products by distil-

(Continued on Page 195)

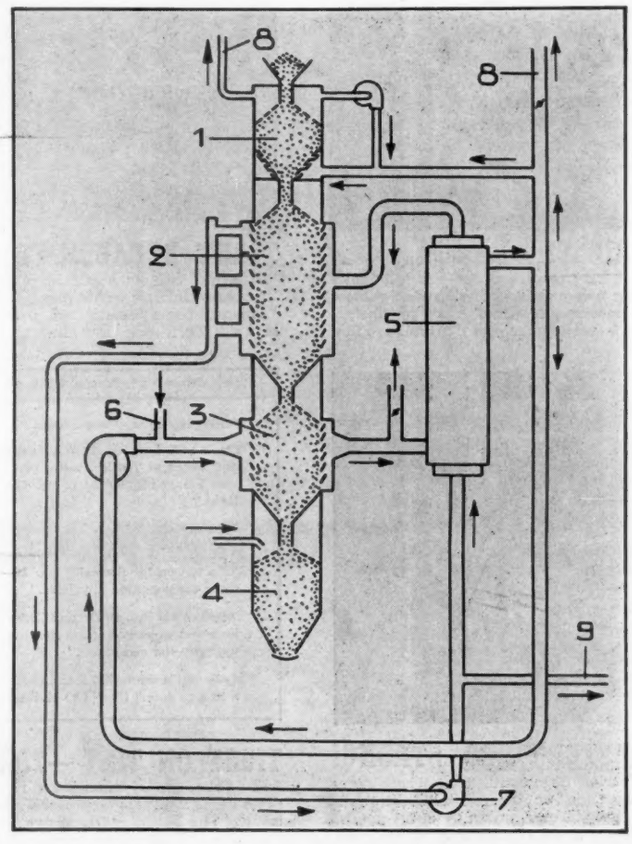
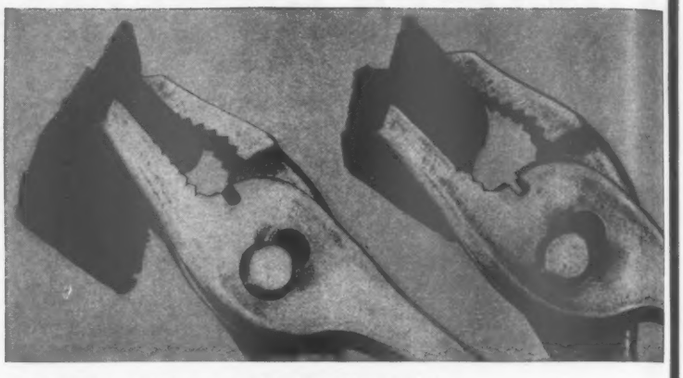


Diagram of G.P. retort at St. Hilaire, France

(1) Preheating chamber; (2) distillation chamber; (3) combustion chamber; (4) cooling off; (5) heat exchanger; (6) air intake; (7) circulation blower; (8) to stack; (9) delivery to condensation plant

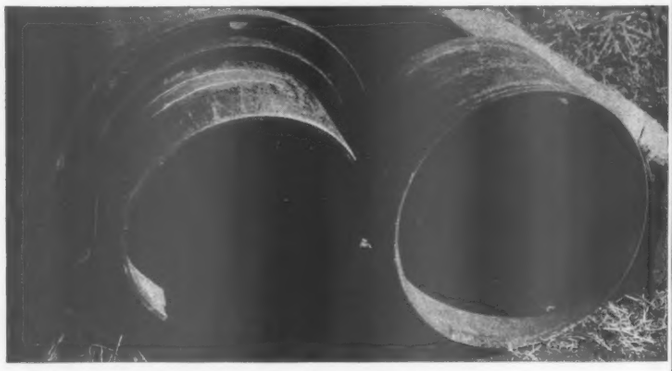
Make Your Pipe Joints

DRESSER PERMANENT TIGHTNESS PHOTO'D!
This old-style "Dresser" (installed 1903 and accidentally uncovered) typifies Dresser performance today on 150,000 miles of pipe. It is still serving continuously, with not one cent for maintenance. Says one user: *"Never a leak on your couplings and have installed thousands."*

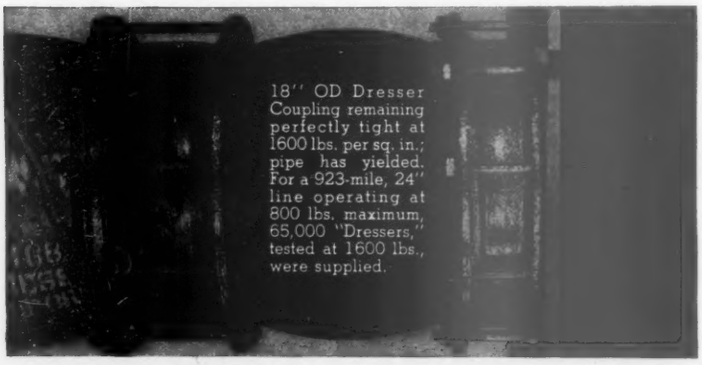


GASKETS LAST AS LONG AS PIPE! Service conditions actually *preserve* Dresser gaskets—give them exceptional longevity. Like new is above old-style 12" gasket, 31 years old. Note 100% resilience when pliers are released. Continually tested, backed by 50 years' experience, Dresser gaskets are even better compounded now than ever.

TIGHT BECAUSE FLEXIBLE! A half-million "flexes" through 4° (see dotted lines), with no pressure drop—this test shows how Dresser time-proved flexibility safeguards and *insures* tightness by absorbing the harmful pipe movements (from frost, expansion, ground movements, vibration, etc.) that often cause rigid lines to fail.



TIGHT BECAUSE FOOL-PROOF! Simple, *standard* "Dressers" can be *assembled* in only one way—permanently tight. *"Factory-built"* within *precise* limits under ideal conditions, *every* "Dresser" has a pre-assured, *uniform* fit and tightness. Uncertainties of field fabrication, the "human equation," and "variables" are out.


18" OD Dresser Coupling remaining perfectly tight at 1600 lbs. per sq. in.; pipe has yielded. For a 923-mile, 24" line operating at 800 lbs. maximum, 65,000 "Dressers," tested at 1600 lbs., were supplied.

TIGHT BECAUSE PREDETERMINED STRONG!
Dresser parts are mathematically varied in strength to meet safely any specified internal pressure—are "advance" engineered of high-strength materials, with ample, *identical* strength and durability at all points. Middle ring ("control" part) is always made at least as strong as pipe; followers are extra rigid, gaskets generous size, bolts special, threads rolled.

Typical Comments—Dresser Tightness	First . . . and Still Serving!				
	Date Laid	Location	Length of Line	Pipe Size	Service
"Tested 125 mi. and not a leak."					
"The 8-inch line has been finished and tested at 160 lbs. water pressure followed by 90 lbs. of air. No leaks."	1891	Malta, O (original Dresser line)	5 mi.	5¼" Cas.	Nat. Gas
"Went out on 20" line. They tested yesterday and found no leaks."	1896	Zoar Gas Fields to Buffalo, N.Y.	8 mi.	12"	Nat. Gas
"Put a test on 16" line—400 lbs. No leaks developed on any joint."	1898	Pittsburgh, Pa.	15 mi.	16" 20" 24"	Nat. Gas
"Tested to 250 lbs., all Dresser Couplings and expansion joints showing up tight—no exceptions."	1898	W. Vir. to N'th-eastern Ohio	80 mi.	10"	Nat. Gas
"Maximum pressure 700 lbs. without a leak to date." (5½" OD oil line)	1902	Sugar Grove, Ohio, to Toledo, O	100 mi.	10"	Nat. Gas

TIGHT ON TEST—TIGHT FOR GOOD! The Table, *left above*, gives typical users' reports on test results with Dressers. In some cases, builders *completely* backfill a Dresser-coupled line before testing. The Table, *right above*, lists lines first to be Dresser-coupled; they are still in active service today! Note Malta line, first Dresser installation, laid nearly 50 years ago, and requiring no attention since.

Permanently TIGHT!*

(Cutaway view of Dresser Coupling, Style 38)

*TIGHTNESS ...YES! ALSO:

1. FLEXIBILITY—expansion, ground movements, vibration, lowering stresses, etc., are absorbed. Many curves, contours, etc., made with straight pipe.
2. SIMPLICITY—standard parts are assembled on plain-end pipe by unskilled labor, using only a wrench, under almost any weather or ditch conditions.
3. SPEED—typical examples: 3 min. for 4" size; 6 min. for 8"; 8 min. for 14"; 10 min. for 18"; 12 min. for 20" (two workmen).
4. STRENGTH—predetermined; joints safely withstand any specified pressure.
5. TRUE ECONOMY—a truly lower joint cost throughout life of line, plus salvage.

Dresser Insulating Couplings, Style 39, mitigate harmful electrolytic corrosion by insulating each pipe section and breaking up the flow of stray electrical currents. Working principle is same as shown in cut-away view above, except gaskets are made with wide insulating aprons extending along pipe. Sizes: ½" ID to 20" OD, incl. Further information furnished promptly upon request.

PIPE-LINE builders rightly have definite ideas about that first pipe-joint essential—tightness—both on test and for the life of the line. Especially with today's higher working pressures.

Why? Because joint efficiency usually controls pipe-line performance.

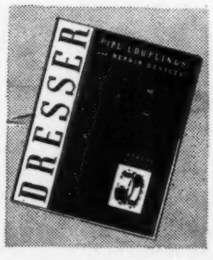
That's why it pays to choose joints whose tightness is proved by the one and only *certain* guarantee—*long-time* field performance.

Such joints largely end troublesome "unaccounted-for" leakage, maintenance, expensive repairs, revenue loss, possible property damage.

How well Dresser Couplings have proved their *inbuilt*, long-time tightness and sound basic design is today a matter of factual record.

For with Dresser Couplings, *testing* tight is only the start. Experience over the past 50 years shows they *remain* tight. No other joint today can offer an equivalent record of service! In fact, the "freezing" action between gaskets and pipe often makes "Dressers" even tighter with age.

Thus, when you install a Dresser-coupled line, you get not only gratifying test results quickly and easily, but also maximum assurance of trouble-free joint performance for the life of the line.



For further details, write for our General Catalog No. 36, a virtual handbook on pipe joints. —S. R. DRESSER MFG. CO., BRADFORD, PA. *New York:* 17 East 42nd Street; *Chicago:* Peoples Gas Building; *Houston:* Shell Building; *San Francisco:* 1038 Polk Street; *In Canada:* Dresser Mfg. Co., Ltd., 60 Front Street, West, Toronto, Ontario.

DRESSER
PIPE COUPLINGS

INTERNATIONAL NEWS

Poland Now Facing Necessity Of Importing Oil Products

Gradual exhaustion of the Polish oil reserves and the necessity of exploring for new fields received considerable attention at a congress of oil engineers, the tenth annual meeting of the group, held in Lwow.

Prospecting work is reported to have been undertaken by the Polish Geological Institute in western Poland in the vicinity of Inowroclaw with the aid of equipment recently purchased in the United States. Results of the exploration efforts are not yet known. In the meantime, a number of alarming reports have appeared in the Polish press stating that domestic demand for oil products and especially for benzine and gasoline has actually caught up with production a few years earlier than was expected and that Poland is now faced by the necessity of importing certain petroleum products.

Official efforts are being made to encourage oil prospecting and the special law dealing with investment easements passed April 9 devoted a separate section to this problem. Strong incentives have been provided to prospective investors in the petroleum industry by exempting from income tax sums invested in mineral oil prospecting and mining (drilling, materials, tools, equipment and labor) during the next five years up to December 31, 1942, by exempting from income tax for a period of 10 years income derived from new oil wells and by exempting from stamp fees documents pertaining to the formation of oil mining enterprises.

Colon Development Company Operations in Venezuela

The Colon Development Co., in its annual statement, reports that the company's production of crude during 1937 amounted to 4,230,551 bbls., compared with the production of 4,613,371 bbls. during 1936.

The division of production by fields follows:

	Barrels	
	1937	1936
Los Manueles	1,097,013	905,447
El Cubo	120,184	303,855
Las Cruces	3,009,304	3,404,069
Oro	4,050	.....
Total	4,230,551	4,613,371

The reduction in production was attributable partly to the strike and partly to the fact that new production brought in during 1937 was insufficient to counteract the natural decline of existing producing wells.

Shipments from the Coloncha terminal (Boca Escalante) amounted to 4,189,433 bbls. during 1937, compared with 4,553,776 bbls. in 1936. All oil shipped was transported under contract to Curacao and there sold, as in the past, to Asiatic Petroleum Co., Ltd. The small Oro production, together with unimportant quantities of oil from the Tarra field, was sold to local consumers.

Expenditure on exploitation was confined to work which could reasonably be anticipated to offer immediate returns and to maintenance of an essential nature.

The successful completion at Los Manueles of well CM.17, which was brought into production at the initial flush rate of 2,000 bbls. daily, and the careful attention paid to the other individual producing wells resulted in an increase in output of the field as compared with 1936. Production is obtained under conditions of strong water-drive, and control of the manner and degree of progressive encroachment of water into the oil horizons is essential. Dehydration of the fluid produced continued to be effected by chemical methods with satisfactory results.

Well CM.18 was drilled to 1,043 feet. Excessive deviation from the vertical necessitated plugging back to 467 feet. At the end of the year, eight wells were yielding oil at the rate of 3,500 bbls. daily. A total of 5,111 feet was drilled during the year.

The production in El Cubo field declined disappointingly, and two producing wells were yielding at the rate of 400 bbls. daily by pumping.

On the termination of the strike, drilling operations were resumed at Las Cruces with one string. A second string was organized and put into operation in October. A total of 10,472 feet was drilled during the year, compared with 2,067 feet in 1936. Two new wells, T.81 and T.82, were successfully completed, four wells were deepened and minor repairs were carried out on four wells. These operations, while not uniformly successful, resulted in a total of approximately 3,250 bbls. daily of new initial production. However, as the greater part of this was obtained in the latter part of the year, it was insufficient to offset the natural decline of other producers. At the end of the year, one new well, T.83, was being drilled and one was under repair.

At the end of the year, 27 producing wells were yielding oil at the rate of 9,100 bbls. daily. Four wells were flowing and 23 were pumping.

In view of the company's need for additional proved oil reserves, the program of exploration was energetically pursued. At Rosario, in the westerly portion of the concession, well CR.2 was spudded in in May and completed at a depth of 9,031 feet in October, then being the deepest well in Venezuela. Unfortunately, it failed to encounter oil-bearing horizons. While the failure of this well does not necessarily preclude the possibility of an oil field being discovered at Rosario, the necessity for obtaining further geological information and the high cost of deep drilling in this area, particularly under prevailing conditions, were responsible for the decision to suspend further development work at Rosario for the time being.

In the region of the Tarra field the seismic survey, begun in 1936, was continued for the purpose of investigating the structure of the deeper formations, with special reference to the possible extension into Colon territory of the productive levels established in the neighboring Barco concession in Colombia. These investigations were hampered by the difficulties of access to the region of the Venezuelan-Colombian boundary and by the rough nature of the terrain. Nevertheless, sufficient information was obtained to justify the selection of a location for a deep test well to be drilled at Las Cruces.

Experimental surveys with seismograph equipment were also carried out in other parts of the concession, but the incidence of the wet season and the swampy nature of the area precluded satisfactory results being obtained.

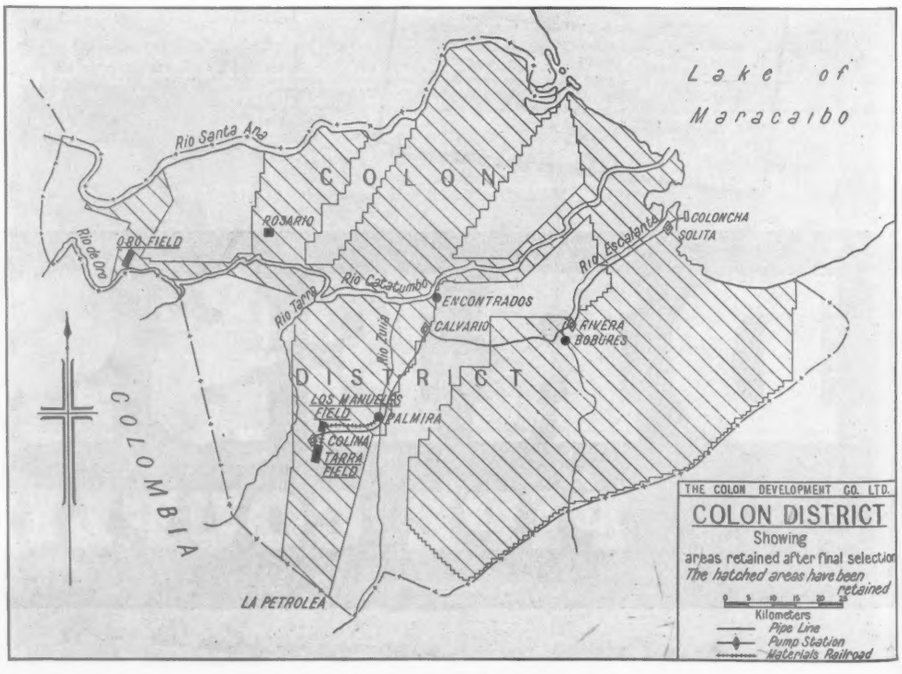
In July a gravimetric survey was commenced in the southeastern part of the Colon district, where surface geological work is precluded by the presence of alluvial deposits.

U.S.S.R. Output Last Year Was 222,882,000 Barrels

The Soviet press recently published statistics showing 1937 production of crude oil at 30,700,000 tons, or approximately 222,882,000 bbls., a total which fell 11 per cent short of the "planned" output. However, the 1937 yield compares with 29,200,000 tons, or 214,992,000 bbls., according to the Soviet press figures. Failure of production to reach the planned total was due, the Soviet press reports, to a lag in the drilling program which was fulfilled by only 68.1 per cent.

Other causes are reported to be inefficient organization of labor, excessive breakage and idleness of equipment, as well as failure to place the Stakhanov movement on a national mass basis. Planned production for 1938 is 35,500,000 tons compared to 34,500,000 tons planned in 1937. January production was 133,000 tons less than planned and drilling fell 39,000 meters below the program with a deficiency of about 1,000,000 bbls. in output. Figures in a recent issue of the Moniteur du Petrole Roumain show the extent to which Soviet petroleum exports have declined in recent years. The figures (in 1,000 bbls.):

Product—	1933	1934	1935	1936	1937
Gasoline	3,230	3,617	5,595	9,519	17,149
Kerosene	1,860	2,985	3,226	3,376	6,423
Gas oil	2,900	3,951	4,405	4,717	4,330
Fuel oil	4,306	5,830	7,550	8,664	12,954
Lubricating oil	1,610	1,772	2,182	2,130	1,340
Crude oil	608	1,124	1,395	3,095	3,550



ENGINEERING and OPERATING

In This Issue

REFRIGERATION USED WHEN PROCESSING GAS FROM DISTILLATE WELL
By Mitchell Tucker ..... *Page 86*

By reducing the natural gas pressure through suitable equipment the Tide Water Associated Oil Co. and the Seaboard Oil Co. have been able to effect sufficient refrigeration to remove liquid fractions from the gas and at the same time conserve sufficient pressure to enable the return of the gas to the formation. The plant described by the author is located in the Cayuga field of Texas and was designed to process the production of distillate wells. It is the first of its kind.

FAST MOVING-TIME MADE WITH UNITIZED DRILLING EQUIPMENT
By Paul Reed ..... *Page 87*

Twelve 3,000-foot wells were drilled with one rig in less than 10 months on a lease near Kermit, Tex. The manner in which the rig was unitized is explained here and it will be seen that ease of moving conserves a major portion of the normal time taken for drilling this number of wells.

CALIFORNIA REFINERY OPERATES ON NATURAL LUBE OIL STOCK
By T. P. Sanders ..... *Page 88*

Due to unusual field conditions and to the unique characteristics of the local crude a refinery located at Bakersfield, California, is able to produce a wide range of motor lubricants without going through the usual procedure of dewaxing, filtering and treating heavily with chemicals. Vacuum distillation equipment plays an important part in the processing of the crude to conserve the natural properties of the crude.

THERMAL CATALYSIS OF CARBON MONOXIDE AND HYDROGEN
By A. H. Nissan ..... *Page 89*

Based upon research completed in England the economics of various methods for producing synthetic motor fuels and lubricants are discussed from an economic standpoint. The author applies the conclusions to conditions as they exist in that country but since the manufacture of synthetic motor fuels and lubricants from petroleum, coal or shale oil involves substantially the same basic chemical reactions, the results are of international interest and application.

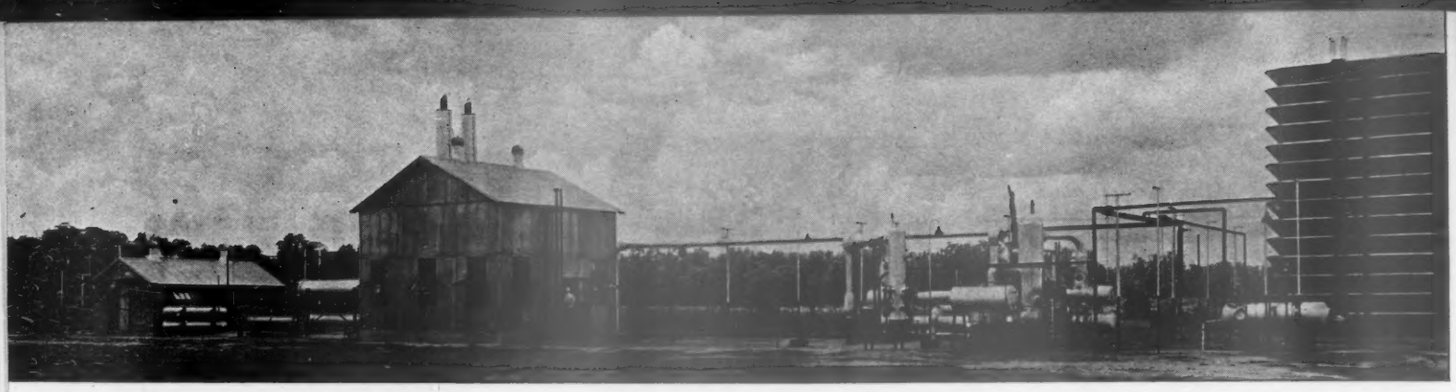
ROTARY-TYPE PUMP IN PIPE LINE SERVICE UTILIZES UNUSUAL DESIGN
By Irving H. Buck ..... *Page 98*

A rotary-type, valveless pump with positive-seating effect was recently perfected for many types of oil field service. The construction of the pump is unique and through its relative simplicity and adaptation to loads covering a wide range of volume the pump is particularly well suited in gathering service.

OPERATING IDEAS ..... *Page 103*

QUESTIONS ON TECHNOLOGY—*By C. K. Francis, Ph. D.* ..... *Page 107*

PROBLEMS FROM READERS—*By L. G. E. Bignell* ..... *Page 108*



Overall view of Tide Water-Seaboard plant. Equipment from left to right: Boiler, auxiliary building, ammonia tanks, compressor building, refrigeration equipment and water tower

Refrigeration Used When Operating Distillate Well

By MITCHELL TUCKER

The high-pressure-refrigeration extraction-recycling plant of the Tide Water Associated Oil Co. and the Seaboard Oil Co., located in the Cayuga field of East Texas, has been operating in the experimental stage since March 24. It is located on a 10-acre tract of fee land on the J. A. Campbell lease in the James Wilson Survey, Anderson County, Texas.

The plant is the first of its kind to be built, and was designed to care for combination wells (so-called "gas-distillate" wells). Efforts are currently being made to achieve somewhat the same objectives by different processes.

The matter of economically handling combination wells, in line with well established conservation principles, presents a two-fold problem to leaseholders in such deep high-pressure gas fields, and the Tide Water-Seaboard plant is successfully meeting both of these mandates. In the first place, they have suggested a means of profitably operating the so-called gas-distillate fields by the efficient extraction of the natural condensate from the high-pressure gas.

To comply with the growing conservation practice of pressure maintenance in oil or gas reservoirs, the Tide Water-Seaboard project provides for the return of all residue gas (except that used for light and fuel at the plant) to the same formation from which it was withdrawn.

The Cayuga field is particularly suitable for the application of this process. Situated as it is on a dome-like structure, oil production is obtained from a comparatively thin Woodbine sand section immediately above the water level. Prolific gas volumes occur in a thick section of sand just above the well. Wells situated near the gas-oil contact have always been troubled with excessive producing ratios, and in several instances oil wells have gradually turned to gas wells after short producing periods.

It is estimated that about 12,500 acres at Cayuga are proven for gas production, although that portion of the field has been sparcely developed because of an inadequate market for the gas. The designer of this plant was inspired to begin preliminary investigations in order to create a revenue for operators holding vast gas acreage where market is not available, particularly gas containing an appreciable amount of condensate.

At present only two wells are tied into the high-pressure - refrigeration extraction - recycling plant, one as a producing gas well and the other as an input well. To avoid any legal entanglements, both the withdrawal and input wells are on the same fee property. These two wells were also selected because of their relative position on structure. No. 1 Rampy, located to the south of No. 2 input well, and higher on structure, is supplying gas for plant operation at this time. Both of the Rampy wells were completed in the Woodbine.

High-pressure line into plant and return

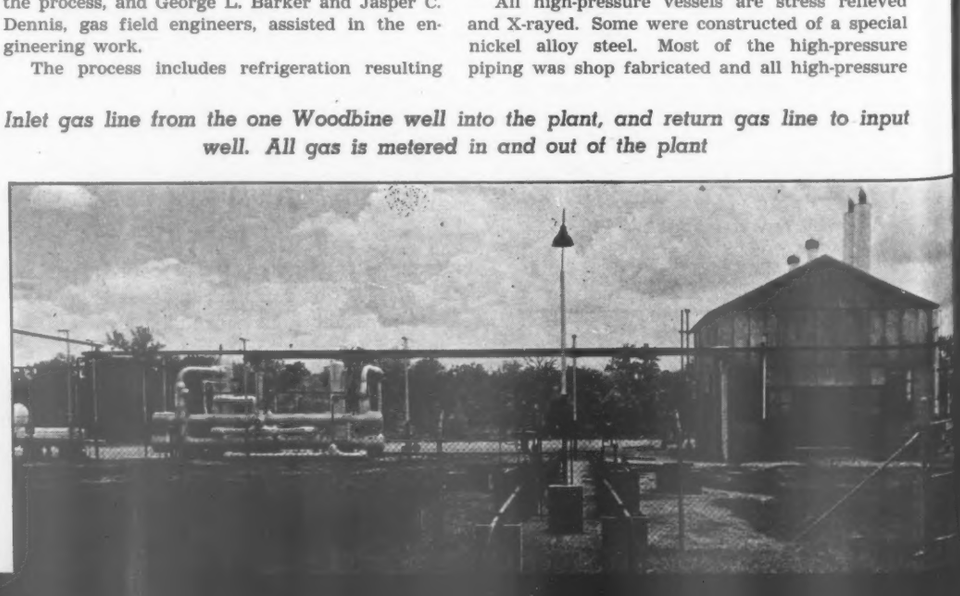
The plant was designed from actual results obtained from the operation of a small test plant. The J. F. Pritchard & Co. of Kansas City did the construction for the Tide Water Associated-Seaboard. William H. (Jack) Vaughn was responsible for the design and origination of the process, and George L. Barker and Jasper C. Dennis, gas field engineers, assisted in the engineering work.

The process includes refrigeration resulting from expansion of the gas and also employs the use of ammonia or other refrigerating mediums to aid in obtaining the definite temperatures desirable. The system employs the use of heat exchangers and other equipment, and methods of handling the gas to obtain high efficiency for reaching subnormal temperatures with a minimum horsepower requirement. The extraction of condensate is made under as high a pressure as possible in order to reduce the horsepower required to return the gas to the same formation from which it was withdrawn. Experiments were conducted on pressures ranging from well pressure downward in order to arrive at most efficient operating schedules. Until recently very little has been known about the behavior of complex mixtures at higher pressures, and until recently no method of calculation of the mechanics of condensation was considered available.

The equipment throughout the plant is of the most modern design and the plant is laid out and constructed in a manner to afford the greatest degree of efficiency, safety and flexibility for the addition of other units. The one-stage engine-compressor is 400 hp., with vertical power cylinder and horizontal compressor cylinders. The ammonia and gas cylinders are attached to the same machine.

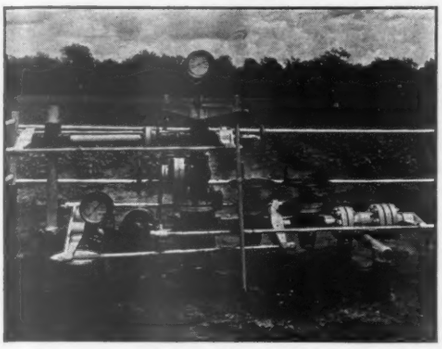
All high-pressure vessels are stress relieved and X-rayed. Some were constructed of a special nickel alloy steel. Most of the high-pressure piping was shop fabricated and all high-pressure

Inlet gas line from the one Woodbine well into the plant, and return gas line to input well. All gas is metered in and out of the plant



joints and fittings are of series 1500 ring-gasket type. The water pumps are steam driven, some being of the centrifugal and others of the reciprocating type. The plant being of an experimental design, it was thought advisable to keep the compressor work for both refrigeration and gas boosting within the same machine.

The plant is equipped for complete automatic control for operation and safety. An essential feature of a high-pressure plant is safety arrangements for operation. In this connection a three-button control system was installed and control button located at plant office. By pushing one button a master valve on the gas fuel supply and



Input well on the Rampy lease, where all residue from the plant is returned to the Woodbine sand

pilot line to the boiler is closed and the same mechanism opens a snuff valve on a steam line to the fire box of the boiler. Pushing the second button grounds the engine magneto, stopping the engine compressor. Pushing the third button closes the stop valve on the main incoming gas line to the plant. This latter valve also operates automatically on a differential in pressure across the valve, in that should a line blowout occur on the plant side of the master stop valve, the valve would close, shutting off the incoming gas from the field. All of these valves remain closed until they are manually opened again. The engine-compressor is equipped with an automatic oil pressure and water temperature shut-down device, and the accumulator on the suction of the unit is equipped with a mercoid switch which grounds the magneto and stops the engine if liquids attempt to carry over into the compressor cylinders.

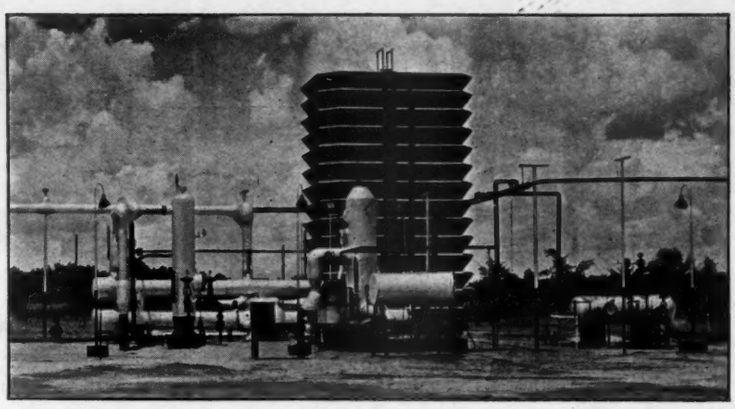
Plant Laboratory

The laboratory is conveniently located with respect to the plant and office. It is thoroughly equipped so that tests can be made on all plant products and distillate produced from gas wells. Cold brine is circulated through the condensers for distillation work, eliminating the necessity of using ice. The gas, steam, air, water and ammonia are connected to the laboratory for convenience and control.

The application of such plants as this would seem almost unlimited in high-pressure gas fields, but there are many problems connected with such operations both above and below the ground that must be considered as to safety, economics and practicability. First, an accurate survey of properties should be made to see that an adequate supply of gas is available to justify the construction or enlargement of a plant. Furthermore, full information as to the physical properties of the producing horizon must be known. The success of a recycling plant of this type depends on the thickness, porosity and permeability of the formation and the amount of condensable hydrocarbons contained in each unit volume of gas.

The present Cayuga plant proved to be capable of handling more gas than had been anticipated. Hence, it is planned to connect other withdrawal and input wells to the present unit so that it may be thoroughly tested under full load. Plant expansion will depend upon results of operation under full load.

L. D. Phillips, plant superintendent, is in active charge of the plant. General supervision is under T. R. Wade, general superintendent of field. While the operation of the plant progresses, its results will be reviewed with interest by companies generally as this installation is designed to conserve the energy of the field and at the same time effect a maximum recovery of liquefiable hydrocarbons from the gases processed.



Refrigerating equipment

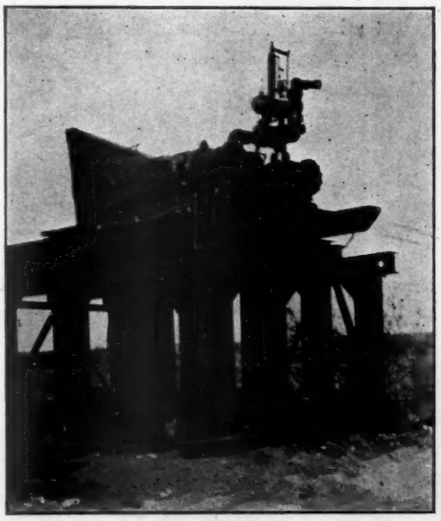
Fast Moving-Time Made With Unitized Drilling Equipment

By PAUL REED

When one rig is used to drill several wells on a property, it is sometimes possible to save a considerable amount of money by planning operations in advance so that moving between locations may be done quickly. An example of what can be accomplished by the use of strategic arrangements is to be seen in the record of the drilling of 12 wells to 3,020 feet in 9 months and 10 days on the Gulf Oil Corp.'s Daugherty lease near Kermit, Tex. All equipment exclusive of the boiler plant was handled in three units in the following manner:

The derrick with all equipment on it, including blocks, hoists, rotary, etc., was skidded from one location to another. The crown block was never removed until the rig was stacked after the 12-well program had been completed.

The engine, a 12-inch by 12-inch horizontal twin-cylinder steam engine, piston valve type, and engine substructure were skidded as a unit.



Horizontal twin engine on skid-type base providing derrick floor elevation

The two slush pumps mounted on a single portable base were skidded as a unit. To remove the slush pumps it was necessary to break out only four connections; namely, two mud suctions, one mud discharge, and one live steam line.

The 12 wells were drilled on three one-quarter-section blocks; this meant four wells to each block. By setting the boilers in the center of a quarter block it was possible to move the rig around the boilers until the quarter block was drilled. Consequently, two moves of the boilers were sufficient for the drilling of the 12 wells after they were installed in the first location. The boiler plant was equipped with three 100-hp., 250-pound working pressure boilers; two 7-inch by 4½-inch by 10-inch boiler feed pumps, and a portable zeolite water softener. At the close of the drilling program, the state inspector found the boilers in perfect condition which was attributed to the effectiveness of the water softening employed.

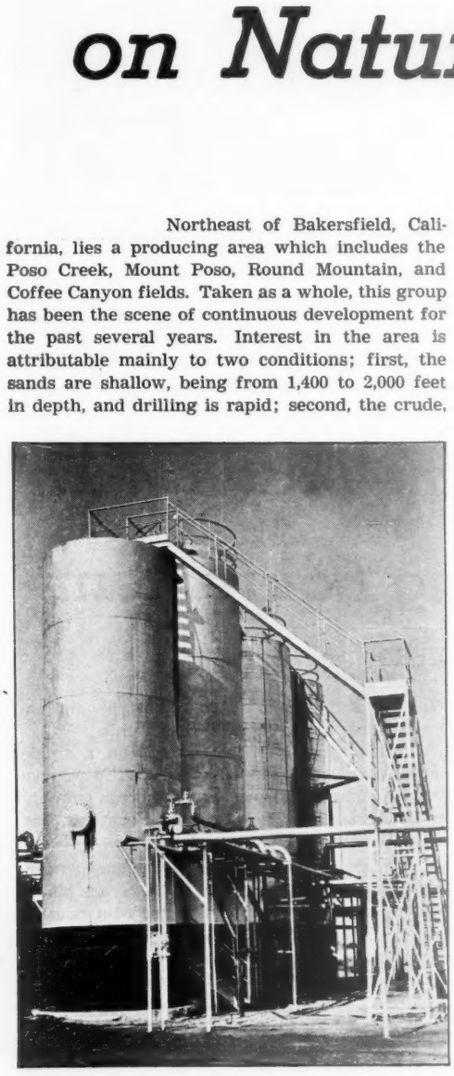
When the rig was to be moved the work of moving started at 7 a.m., and during the later part of the afternoon on the following day drilling commenced at the new location. The average distance between wells was 660 feet. The average time of drilling was 21 days. In eight of the 12 wells 600-foot strings of 10¾-inch, 40.50-pound casing was set; in four of them strings of equal length were set consisting of 9⅝-inch, 40-pound casing. In each of the wells a 2,765-foot string of 7-inch, 24-pound casing was set. The wells were drilled in with rotary, oil being used on all completions.

The contractor estimates that a saving of $200 per well was effected by moving drilling equipment unitized in this way and by locating the boiler plant so that it would serve for the drilling of four wells. The general scheme followed has been often used in drilling operations, but it is believed that the fast time made in moving in the course of this drilling program stands out as an unusually good record in the Kermit area.

California Refinery Operates on Natural Lube Oil Stock

By T. P. SANDERS

Northeast of Bakersfield, California, lies a producing area which includes the Poso Creek, Mount Poso, Round Mountain, and Coffee Canyon fields. Taken as a whole, this group has been the scene of continuous development for the past several years. Interest in the area is attributable mainly to two conditions; first, the sands are shallow, being from 1,400 to 2,000 feet in depth, and drilling is rapid; second, the crude, though of a very low gravity, has proved to be an ideal lube-oil stock.



Road-oil blending tank

A refinery, owned by the Golden Bear Oil Co. at Bakersfield operates exclusively on Poso Creek and Coffee Canyon crude, making no gasoline but only lubricating oils, liquid paving asphalts, and road oils. Plant operation is unusual, as special precautions are taken to prevent cracking of the high-boiling lube stock.

Gravity of Crude

The crude ranges in gravity from 14 to 16 degrees A.P.I., between .24 and .60 per cent sulfur, and no wax. A large part of the refinery's charge is produced by the Golden Bear Oil Co. in the Coffee Canyon field, but additional crude is purchased in the Poso Creek field.

In order to pump the crude through the 12-mile line from the fields to the refinery the oil is heated to 180 degrees. In the field all of the crude is electrically dehydrated before delivery to the refinery. Capacity of the Golden Bear refinery is 2,000 bbls. per day.

Upon arrival at the refinery, the crude goes through a pipe still where it is heated to 600 degrees. At this temperature it enters the first-stage vacuum tower. An unusual feature of the plant is the operation of towers under vacuum in order to prevent cracking.

The first-stage tower carries 12 inches of vacuum. Three overhead cuts are taken from this first-stage fractionator. The lightest cut is kerosene distillate, having a boiling range from 380 to 500 degrees. Next cut is gas oil with a range from 500 to 650 degrees. The last fraction is a neutral cut with a Saybolt-Universal viscosity of 100 seconds.

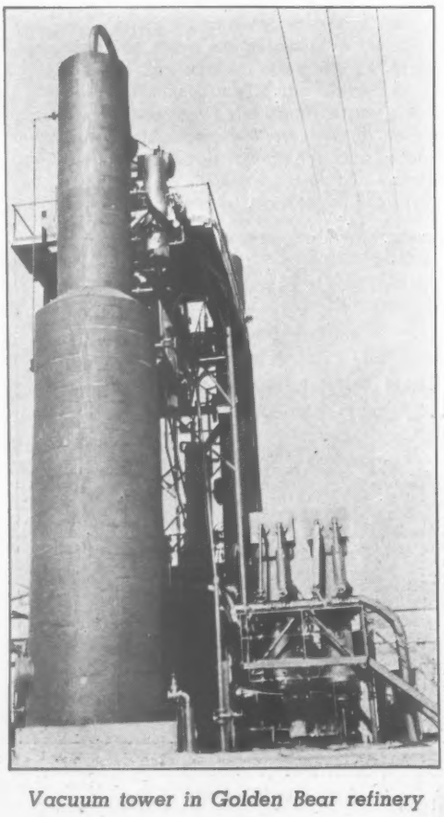
The bottoms from the first-stage tower are conducted to the No. 2 pipe still and heated to a temperature of 650 to 675 degrees. At this temperature they pass into second-stage vacuum tower. This tower carries a vacuum of 28½ inches to avoid cracking of the lube-oil stock.

Three overhead fractions are taken from the second-stage tower. The first is a neutral cut with a viscosity range from 150 to 200. The second is a medium cut having a viscosity of 1,000 seconds. The heaviest cut has a viscosity of 5,000. The bottoms from the second-stage vacuum tower consist of 50-penetration asphalt at 77 degrees F.

Cuts Taken

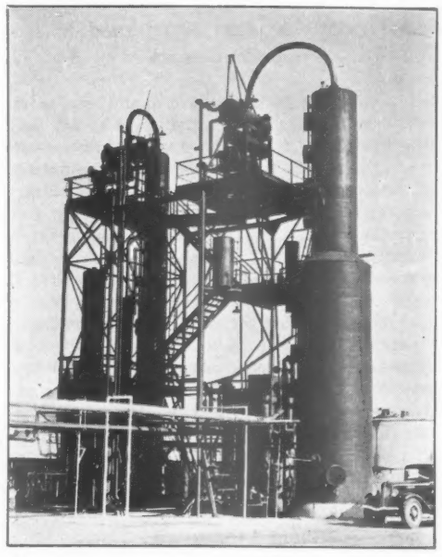
The seven fractions into which the crude is divided are represented in the following proportions:

Cut—	Per cent of crude
Kerosene distillate	5
Gas oil	11
100-viscosity neutral	6
150- to 200-viscosity neutral	6
1,000-viscosity medium lube-oil cut	20
5,000-viscosity heavy lube-oil cut	10
Bottoms, 50-penetration asphalt	42
	100



Vacuum tower in Golden Bear refinery

The neutral-oil cuts are blended with those of the heavier lubricating oil to make motor oils. Because of the unusually low sulfur and wax content of the crude the fractions undergo no further treatment.



General view of fractionating equipment in Golden Bear refinery

Petroleum Development Technology

The annual edition of Petroleum Development and Technology, 1938, the official report of transactions of the petroleum division of the American Institute of Mining Engineers, has been recently published. This book contains reports of the three meetings of the petroleum division held during 1937 with an unusually large number of papers. In addition about one-half of the book is devoted to reports of production and refinery activities in this and many foreign countries. These reports have been a feature of the transactions for several years and the accumulated data is of much value to anyone interested in the oil industry. The book sells for $5.00 and can be ordered through the Book Department of The Oil and Gas Journal, Tulsa.

Thermal Catalysis of Carbon Monoxide and Hydrogen

By A. H. NISSAN, B.Sc.
Research Fellow, Department of Oil Engineering,
The University of Birmingham, England

Working with Zerbe on similar lines (see page 49 July 21 issue), Fischer discovered the fact that the "oxygenated-hydrocarbon" fraction of the mixture resulting from interaction of carbon monoxide and hydrogen, decreased with decrease in pressure accompanied by slowing down of the rate of reaction.[1] The last phenomenon can be accounted for by Le Chatelier's principle and this retarding of reaction velocity necessitated the search for new catalysts which would accelerate combination but keep the proportion of oxygenated compounds low. The process should however proceed under low pressures and thus the catalyst must be active under 1 atmosphere. Fischer and Tropsch (1925) found that water gas could be converted into hydrocarbons at 200-270° under 1 atmosphere and in the presence of catalysts containing iron or cobalt. With iron and an optimum temperature of 250° the reaction followed the course:

$$2CO + H_2 = (CH_2) + CO_2 \qquad (a)$$

Using cobalt the reaction followed the equation:

$$CO + 2H_2 = (CH_2) + H_2O \qquad (b)$$

but it was necessary to control the temperature in the region of 190°.

Thermodynamic considerations. Ellis[24] on "hydrocarbons from carbon monoxide" discusses the known thermodynamical data which has bearing on the problem. The following are the chief points mentioned:

1. Synthesis of pure hydrocarbons from carbon monoxide and hydrogen receives strong support from the individual consideration of the free energy changes associated with the formation of paraffinoid hydrocarbons, n-hexene, cyclohexane and benzene. These free energy changes are large negative values which increase on ascending the homologous series of saturated hydrocarbons, the inference being that the production of the higher members is favored.

2. Smith[25] predicted that around 300° and 1 atmosphere any paraffin hydrocarbon could be obtained from the reduction of carbon monoxide with hydrogen by the use of the correct catalyst (practically all members of the paraffin series have already been isolated and certain of them identified up to $C_{150}H_{302}$).

3. Paraffins predominate in the reaction products and not cyclic, olefinic or benzenoid types (olefines were found experimentally to increase by variation of composition of reacting gases.)

4. Cyclohexane and benzene are also possible products but the literature has only confirmed the absence of cyclohexane and traces of benzene.

5. Temperature range for kogasin synthesis is between 160-300°, while the range for synthol (alcohol) lies between 300-450°; above 375° methane should be (and in fact is) the main product.

6. Smith showed that there are greater tendencies for oxygen to form carbon dioxide than water as a by-product which indicates that the first reaction (a) is favored (using iron catalyst). It is safe to predict that somewhat higher temperatures can be used with iron, a point confirmed experimentally.

Catalysts. One of the most important variables in the synthesis of hydrocarbons is the catalyst. Many such accelerating agents have been tried with varying degrees of success. The yields[7] obtained by the use of certain catalysts are summarized in Table 2.

TABLE 2—YIELDS OBTAINED WHEN USING VARIOUS CATALYSTS

	Approximate yield of Kogasin mixed with gas, grams per cubic meter of gas	Days' time until conversion rate was reduced to 80% compared with effect on start days
Iron:		
Fe.-Cu.-Mn.-Silica gel-0.4%-K_2CO_3	30–35	8
Fe.-Cu.-precipitated on kieselguhr	28	8
Nickel:		
Ni.-Mn.-Al.-precipitated on kieselguhr	105	45
Ni.-Th. precipitated on kieselguhr	100	30
Cobalt:		
Co.-Th.-Kg. (precipitated)	110	60
Co.-Th.-Kg. (decomposed)	105	25
Co.-Mn-Kg. (precipitated)	105	30 minimum
Co.-Th.-Cu.-Kg. (precipitated)	105	60

The cobalt-thorium-kieselguhr preparation is probably the most active catalyst yet found.[2,26] This complex is prepared by precipitating the oxides on kieselguhr and then reducing with hydrogen. It gives 110 gr. of liquid hydrocarbon per cubic meter gas, falling off to 80 per cent of this yield after 60 days, the theoretical yield being 180 gr. of liquid hydrocarbon per cubic meter of gas. This diminution in efficiency was due to wax collecting over the surface area of the catalyst. As much as 180 per cent of wax based on the weight of catalyst used was collected in one instance. Extraction of the wax would regenerate the catalyst. It was also observed that copper added to iron or cobalt facilitated the initial activity of the catalyst in as much as lower temperatures were required for the reduction of the oxides. On the other hand, copper was found to be detrimental to nickel catalysts. Again, the addition of small amounts of alkalies increase the proportion of gas to other hydrocarbons synthesized.[8] For efficiency and reactivity the catalyst should be carefully prepared according to definite procedure[24] and kept from contact with poisons and inhibitors. These remarks are not exhaustive, for chromium, zinc, beryllium, rare earth metals, uranium, silicon, magnesium, manganese oxide, active and amorphous charcoal were tried in conjunction with the transition elements (iron group).[27] The catalytic efficiency decreases in the order given. The function of secondary substances[28] (either phosphorus, arsenic or sulfur) added to the catalyst was to combine with any free iron which may be formed and thus prevent side reactions promoted by the free metal.

Mechanism: The complex mixture resulting from the interaction of the raw materials under the limiting conditions that are characteristic of the Fischer-Tropsch process makes a simple explanation of the mechanism of the reaction almost unattainable. Indeed, a controversy arose (1926) between the German scientists and workers at

Utilization of Synthetic Products Increasing

The synthesis of motor fuels, chemicals and resins from petroleum, coal and shale oil has been recognized as a practicable undertaking for years and the basic chemistry of the subject has been developed well in advance of the economic solution of balancing costs with the value of the products. However, refinements in the chemical procedure have been made from time to time with the hope that through such changes economies would be effected that would justify their large scale application. This has been practiced in some instances but in general, the market for the products has been considerably under the volume needed for economic operation.

In the first portion of his article, which appeared in the July 21 issue of The Oil and Gas Journal on page 49, the author reviewed the synthesis of each group of hydrocarbons and oxygenated organic compounds and discussed their value and uses. Here he describes in detail the low-pressure synthesis of hydrocarbons by the Fischer-Tropsch process and gives data relating to the cost of manufacturing various organic substances by synthetic methods.

Birmingham University concerning this problem.[24 37 39 40 41] Even in 1936 Fischer could only suggest two alternatives, each equally possible. The experimental measurements of the different quantities reacting in and resulting from the process, could support either of the two hypotheses.

The fact that only metals of the eighth group are efficient catalysts and that carbides are actually present in the used catalyst suggests the formation of transient high reactive carbides of these metals as the first stage of a series of reactions. Thus:

$$CO + 2\ Me = MeC + MeO$$

Where Me = metal.

These carbides are inherently unstable under the conditions existing and give up their carbon readily to the hydrogen.

$$MeC + MeO + 2H_2 = 2\ Me + (CH_2) + H_2O$$

Possibly a more accurate explanation would be the alternative formation of higher and lower carbides than the simple carbide and metal theory indicated in the equations. The (CH_2) group is a hypothetical group polymerizing readily into stable molecules which may possess high carbon content (50 carbon atoms or more) and high melting point (over 100° C.). Further, two processes may be assumed to be taking place at different rates, hydrogenation and polymerization. Should hydrogenation be the faster, then methane is produced—$(CH_2) + H_2 = CH_4$. Should polymerization proceed at a greater rate, olefines and paraffins result

$$n(CH_2) = C_nH_{2n}\ \text{(olefines)}$$

$$n(CH_2) + H_2 = C_nH_{2n+2}\ \text{(paraffins)}$$

The greater the rate of polymerization the greater the percentage yield of olefines.

The alternative theory is that hydrocarbons of high molecular weight are formed rapidly from the methylene group. The limit for their size is controlled by their thermal stability to dissociation. That is, any higher polymeric forms would undergo pyrolysis into smaller and more thermally stable forms under the limiting conditions existing. The catalyst is instrumental in the formation of large polymers which are deposited on its surface, and, in addition, the presence of the catalyst and hydrogen at the elevated temperature (190°) results in the hydrogenation of the large transient polymers to the paraffinic form. These latter molecules can only combine with more hydrogen after pyrolysis into compounds of simpler constitution.

$$C_{2n}\ H_{4n+2} + H_2 = 2\ C_n\ H_{2n+2}$$

The rupture is not necessarily at the middle of the chain as indicated. Pyrolysis and hydrogenation goes on until the resulting molecules have sufficient vapor pressure at 190° to overcome catalytic affinity or attraction which enables them to distill over in the stream of the process gases. It is interesting to note that the small quantities of oxygenated compounds formed are not considered in detail by Fischer and his collaborators who believe that these are due to side reactions where conditions are not favorable for hydrocarbon formation.[37] (A recent contribution by Rideal on this subject[51] should prove of interest.)

Technical Scale Synthesis: Adapting these experimental and theoretical data into practical results on a technical scale proved to be a series of difficult problems. The technical scale process may be considered under the following broad divisions: (1) Production of a water gas having a composition approximating to the ratio CO : H_2 = 1 : 2. (2) Purification of the water gas. (3) The catalyst. (4) The reaction chamber into which the gas flows under A.P. and 180-200°. (5) Collection and refining of primary products and secondary derived from primary products.

1. An early discovery was that an increase in the proportion of hydrogen in the raw gas yielded a higher proportion of saturated hydrocarbons, while a decrease resulted in a higher proportion of olefines. The optimum ratio CO : H_2 is 1 : 2, and Fischer enlists several methods of attaining this ratio.[7] Coke oven gas may be used alone or mixed with blast furnace gas, water gas, or the steam used in the water gas process; coke oven gas with steam or carbon dioxide may be catalytically converted into a mixture of carbon monoxide and hydrogen, the ratio of these two gases being controlled by operating conditions.

$$CH_4 + H_2O = CO + 3H_2$$

$$CH_4 + CO_2 = 2CO + 2H_2$$

Sometimes two or more processes for attaining the necessary ratio are utilized simultaneously. Methane from natural gas may be treated in the same way to give a mixture of carbon monoxide and hydrogen. Even carbon dioxide from the air or other source can be reduced over copper or coke at high temperatures and then mixed with electrolytic hydrogen.

2. The gas is cleansed from dust and saturated with aqueous vapor. Sulfur must be rigorously eliminated and this proved to be a very difficult problem in the technical process. Fischer and Tropsch arriving at a solution patented a process (1926),[48] using a lead-chromium-copper complex. Lead chromate and copper oxide, reduced with hydrogen at 400° was effective in removing sulfur compounds at temperatures varying between 300-500°. A recent patent claims the use of a mixture of hydroxides and oxides of iron with a minimum of 10 per cent of alkali carbonates,[42] the temperature for sulfur removal being 150-300°. Whatever the method used in removing sulfur and its compounds the gas entering the reaction chamber should not contain more than 0.2 gr. sulfur per 100 cubic meters of gas. Even a slight excess above this limit has an inhibitory effect on the catalyst.

3. The technical preparation and care of the catalyst has been considered previously in this article, the most reactive catalyst being cobalt-thorium-kieselguhr (precipitated). An exhaustive treatment of the subject is given by Ellis.[24]

4. Operating conditions in the chamber and atmospheric pressure and temperature 190° with the narrow margin of ±5°. Below 180° the reaction is very slow, while above 200° methane and carbon are the chief products. It would appear that such moderate conditions would simplify the design of the reaction chamber but the slightly elevated temperature required was, in fact, a serious difficulty. The reacting gases evolve approximately 20 per cent of their total calorific value when the exothermal chemical changes take place. This quantity of heat is sufficient to raise the temperature of the reaction chamber by several hundred degrees. The difficulty was therefore to dissipate this heat and maintain the temperature constant at 190°. In 1932, Fischer, Roelen and Feisst designed successfully a chamber which not only maintained the temperature under efficient control at 190° but conserved the heat of reaction to a considerable extent.[44] The reaction chamber was a rectangular unit 2 by 12 cm. in cross section and 5 m. long, the temperature being kept constant by external coils enveloping the chamber and carrying cooling oil. The hot oil leaving the coils then passed through heat exchangers to form steam necessary for the compressors and other prime movers on the plant. Thus the oil loses its heat and after further cooling circulates through the system again. A recent claim by Fischer is that the yield of hydrocarbons can be increased by arranging the process in stages and removing the more condensible fractions after each stage.[45] As a consequence the gas would be reduced in volume after each stage and this must be considered in regulating the successive stages. The passage of the gas should be at a uniform rate over unit area of active catalytic at each stage and there are two alternative methods to achieve this object. Using a constant temperature throughout the system, the catalysts may be arranged in a series of decreasing activity. The alternative method is to use a catalyst of constant activity in all stages and so to regulate the temperature that it is lower in the first stage than in the succeeding ones. This course may be utilized since the composition of the first primary products is a function of the activity of the catalyst. Thus an increased activity in the catalyst results in a larger yield of light fuel in preference to the higher hydrocarbons.

A gas containing 29.5 per cent CO. and 60 per cent H. in a three-stage unit gave 141 gm. of synthetic gasoline and oil, the theoretical yield being 185 gm. As mentioned, the maximum yield obtained with a single-stage unit was 110 gm. (180 theoretical yield).

5. The collection and refining of the products is a simple process for they are of a high standard of purity and of pleasant odor; further, they are entirely free from sulfur and are colorless. After condensation of the heavier materials, the more volatile are retained by active charcoal or scrubbing oil in the ordinary processes of adsorption or absorption, respectively. The hydrocarbons are given a light alkali wash to remove traces of fatty acids (a few tenths of 1 per cent).[1]

Water Gas Analysis

A water gas containing 29 per cent CO and 58 per cent H, was treated at 190° in presence of cobalt catalyst and gave the following results:

	Yield (% by wt.)	Olefines in fraction % by volume
"Gasol," below 30°	4	50
"Benzine," 30°-200°	62	30
"Oil," above 200°	23	10
Soft wax extracted from oil M.P. 50°	7	..
Hard wax extracted from catalyst M.P. 70° or over	4	..

The most important secondary products are the lubricating oils produced by the polymerization of the olefines. The olefines increased in equal proportion, with the decreasing hydrogen content in the original gas. The highest yield of olefines obtainable was about 55 per cent using gas containing equal molecular ratios of CO and H; with nickel catalyst and CO : H = 1 : 3 only 5 per cent of the kogasin was olefinic. Under normal conditions, however, the yield of petrol is eight times the yield of lubricating oils obtained from the olefines.

Viscous lubricating oils may be obtained by polymerization of the olefines in presence of 5 per cent aluminum chloride. Further a fraction of the oil, boiling point range 125-250°, may be treated with chlorine forming the mono—or di-chloro—kogasin which may be used in one of the processes for the formation of lubricating oils. The first subjects the chlorokogasin to Friedel Crafts' reaction, the chlorinated compound condenses with itself and chlorine-free, viscous oil results. The second condenses the chlorinated kogasin with aromatic hydrocarbons (as commercial xylene) in the presence of aluminum chloride. Each of these three processes produces different lubricating oils from the same kogasin.

Again, using the same kogasin and process the di-chloro-kogasin produces oils of higher viscosities than the mono-chlorokogasin,[6] thus lubricating oils with a particular and predictable set of properties can be manufactured.

The properties of a tested oil produced from

the kogasin fraction distilling between 150-200° are given as follows:

Specific gravity at 20°	0.836	
Index of refraction $n^{20°}_{D}$	1.4658	
Specific refraction	0.558	
Flash point (open) (deg.)	197	
Viscosity E at 20°	19.4	(147.2 CS)
Viscosity E. at 50°	4.0	(29.4 CS)
Viscosity pole height	2.31	
Sligh test (A.S.T.M. oxidation No.)	nil.	
Conradson coke value	0.02	
Point of solidification	below —33°	

The following report on the properties of the different cuts of products obtained by the Fischer-Tropsch process as modified by Synthetic Oils, Ltd., was given by Myddleton at a recent meeting of the Institute of Fuel.[52]

1. Fraction Cut at 150° C. (Motor Spirit)

Specific gravity at 60° F.	0.691
Sulfur, per cent	0.1
Reid vapor pressure, lbs./sq. in.	6.5
Gum, actual mgms./100 cc., glass dish	2.0
Gum, potential mgm./100 cc.—incubation at 35° C. glass dish	1.0
Olefines, per cent by volume	70
Lead susceptibility:	
Octane number of spirit C.F.R. M.M.	68
Octane number with addition of:	
1 cc. T.E.L./gal.	74.25
2 cc. T.E.L./gal.	77.25
4 cc. T.E.L./gal.	80
Distillation curve as given in Figure 1.	

2. Diesel Oils

Properties:	Fraction (B) 200-330°C.	Fraction (A) 200-290°C.
Specific gravity at 60° F.	0.778	0.767
Flash point (closed), °F.	166	174
Viscosity (Redwood No. 1) 100° F., sec.	30	30
Pour point (A.S.T.M.), °F.	30	below 15
Gross calorific value, B.t.u./lb.	20,340	20,304
Cetene number (delay period method C.F.R. high turbulence diesel engine)	81	86
Carbon residue (Conradson)	..	very slight trace
Sulfur, per cent	..	0.03
S.I.T. (in O_2, Moore method), °C.	..	249
Distillation curve	Fig. 2	Fig. 2

3. Lubricating and Transformer Oils

Obtained by catalytic polymerization of fraction 150° C.-200° C. (olefinic content by volume, 52.6 per cent).

	Light oil	Heavier lubricating oil
Specific gravity at 60° F.	0.846	0.858
Flash point (closed), °F.	375	455
Viscosity (Redwood No. 1):		
70° F., sec.	289	1,884
100° F., sec.	129	660
140° F., sec.	65	226
210° F., sec.	39	66
Viscosity index	over +100	+94
Ash, per cent	..	less than 0.01
Oxidation test—Air Ministry Method:		
Viscosity (poises) 100° F. before	..	1.46
Viscosity (poises) 100° F. after	..	3.30
Coke No.—Air Ministry Method:		
Before blowing	..	0.12
After blowing	..	0.73
Cold test	..	Sets clear at 32° F.
Timken bearing test:		
Temp. of oil, °F.	..	100
Lever load, lbs. (8 lbs. breakdown)	..	7
Friction load, lbs.	..	0.70
Scar width, inches	..	0.25
Block temp., °F.	..	116
Press., lbs./sq. in.	..	7,000
Friction coefficient	..	0.077

Plants and Estimates

Plants for the manufacture of the various organic substances discussed are increasing in number and have received greater attention in Europe both from purely scientific and engineering standpoints in order to satisfy economic and political needs. The production of methane by the Sabatier or Erdmann-Bedford processes has been tested on a semitechnical scale. The great handicap to these methods is the cost of removing carbon dioxide from the gaseous hydrocarbons produced, and of removing carbon monoxide from the initial mixture in order to provide the necessary excess of hydrogen. A single-stage process for the removal of carbon monoxide in the detoxification of the town gas of Hameler has been tried successfully[46] by the Gesellschaft fur Gasentgiftung. The plant handles 89,360,000 cubic meters per year at an estimated cost of 1.87 cents per cubic foot.

Methanol is produced by the Interessen-Gemeinschaft and the capacity of the plant is estimated at 100 tons per day although the average production is 20,000 to 25,000 tons per year. The I.C.I. plant at Billingham has an annual producing capacity of 20,000 tons; in 1935, however, it only produced 9,657 tons of methanol. Referring to the United States a total production of 30,000 tons of methanol was recorded for 1933. Belgium, France, Italy and Japan operate plants for the synthetic production of methanol. It has already been pointed out that the technical synthesis of higher alcohols is limited and that the Du Pont company (America) produces such alcohols as by-products in the manufacture of methanol.

The Fischer-Tropsch process has been incorporated on a technical scale by the Ruhr-Chemie A.-G. and has produced 1,000 tons of motor spirit per year. In 1936 four more plants were laid down with a total estimated capacity of 170,000 tons per year.

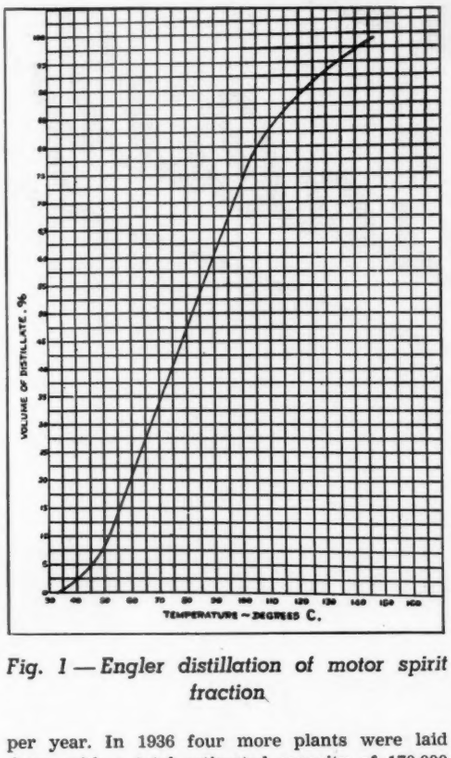


Fig. 1 — Engler distillation of motor spirit fraction

Investigations carried out by the Australian Commonwealth Hydrogenation Committee have yielded many interesting data on the economical aspects of the Fischer-Tropsch process. A summary of the committee's conclusions is of great interest.

Firma Otto Wolff and the United Steel Works of Germany have prepared an estimate for a plant capable of producing 30,000 tons of primary products per annum. The estimate for total cost of a synthetic petrol plant included 14 relevant items. The cost was given in the report in pounds sterling (at the rate of exchange £ = R.M. 12.58) and represented German supplies costs for delivery f.o.b. at a European port chosen by the supplier. The most expensive items were: (1) Gas producing plant $2,550,000; (2) catalyst chamber plant, $1,480,000; and (3) sulfur eliminating plant, $612,500. The sum total for all plants including pipe lines, current network and tank farm amounted to $7,060,000, approximately. There is doubt, however, whether a plant producing 30,000 tons of primary products is the most economical unit, since the proportional cost might be reduced on a 50,000- to 60,000-ton plant.

The German experts experienced more difficulty in estimating the total cost for erection of the plant on Australian soil and they could only prepare a "rough estimate." This estimate covered 18 items with an additional $203,500 for unforeseen contingencies. The cost of transport for all parts of the plant listed in the first estimate (at $47.50 per ton) takes the major item ($950,000) with the license from Ruhr-Chemie A.G. coming next ($525,000). The total cost of erection plus cost of plant itself, as detailed in the first list amounted to $11,715,000, approximately.

Operating costs for a year have been prepared by Otto Wolff and were assessed at $1,140,000 per annum, approximately. The important point is that 200 men only are employed on the plant; this number bears to the number of men employed by a hydrogenation plant of the same output the approximate ratio 1 : 1.8. Whether this is advantageous or not depends on the point of view taken with respect to labor considerations and capital. The final cost of the petrol estimated on a possible and rather favorable production of 10,800,000 gallons per year is 21.3 cents per gallon.

The I.C.I. prepared a similar estimate for hydrogenation plants utilizing black or brown coal but on an optimum production of 150,000 tons. To put the two processes on a more comparable scale, interest on capital and amortization have been considered on equal bases, and the following table results:

	Hydrogenation—Black coal	Hydrogenation—Brown coal	Synthesis
Annual output (tons petrol)	150,000	150,000	30,000
Capital cost	$55,105,000	$59,700,000	$14,643,750
Operating cost, cents/gal.	14.53	14.88	10.55
3½% on capital, cents/gal.	3.63	3.81	4.67
Amortizations*:			
(1) 10 yrs. 2½%, cents/gal.	9.17	10.03	12.11
(2) 15 yrs. 3%, cents/gal.	5.71	6.23	7.27
Total costs:			
(1) Cents/gal.	27.33	28.72	27.33
(2) Cents/gal.	23.87	24.92	22.49

*It has been assumed that a sum is set aside at the end of each year and compound interest earned for the rest of the period at the rate named.

In comparing the two processes the chairman, Sir David Rivett, points out on behalf of the committee that although it was anticipated that the Fischer process could be worked on 30,000-ton units, whereas the Bergius hydrogenation process required 150,000 tons yearly production, such anticipations may not be justified. On a 50,000-ton basis there was not much to choose from the standpoint of capital expense. Further, the estimated cost per gallon of petrol may not have been sufficiently accurate to warrant preference in favor of the synthesis of petrol.

These two findings apparently contradict the statement[8 9] that the Fischer-Tropsch is cheaper than the hydrogenation process and can be run on smaller units. There is little doubt, however, that compared with hydrogenation plants the Fischer-Tropsch plant is simpler to construct and simpler to operate.

The Falmouth Report[54] on Oil From Coal has brought forward evidence which, corroborated with Rivett's findings, throws grave doubts on the economical value of such processes. Indeed, a judicious examination of the problem forces the conclusion that however attractive the scientific potentialities and great the effect on human scope of knowledge, these processes are not yet in a position to support themselves without artificial aid in the form of subsidies. Detailed inquiries[53 54] into the relative risk involved by Great Britain depending on such processes for the national supply of oil in war time or on alternative methods of supply—by transport under the convoy system and storage—have produced convincing arguments against the synthesis of oil and petrol to supply British war time requirements.

Without going into great detail the findings of the Falmouth committee are of interest. The first point that may be mentioned here may throw light on the present state of knowledge

(Continued on Page 96)

PRESSURE STORAGE *for quality motor*

A SIGNIFICANT TREND!

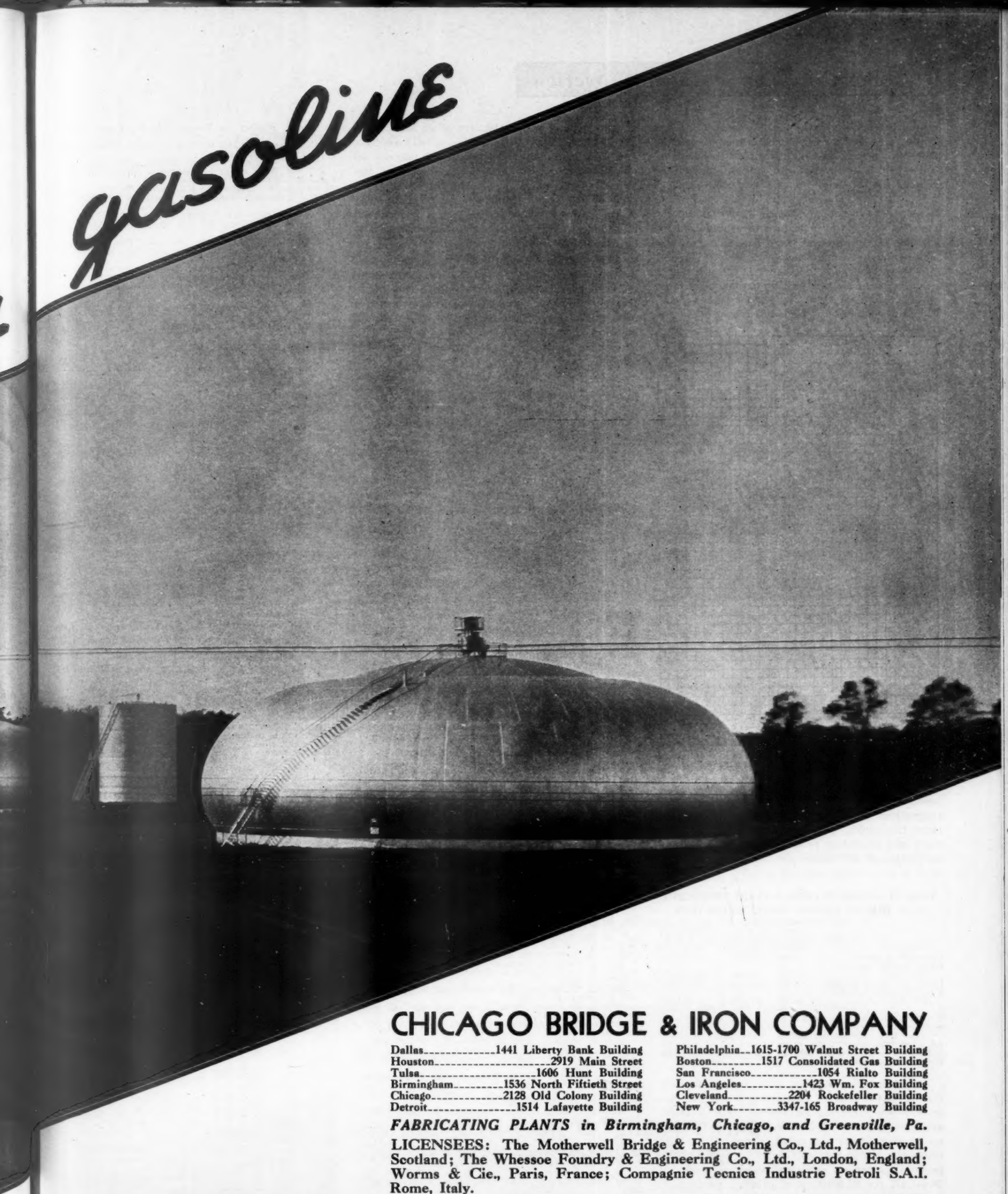
THIS picture shows three Hortonspheroids located at a marine terminal near Muskegon, Michigan. One is a 60,000-bbl. unit, while two have 80,000-bbl. capacity each. All are designed and fitted to withstand an internal pressure up to 2½ lb. per sq. in. They serve as containers for high test motor gasoline which is received by boat and held in storage for distribution to retail outlets in western Michigan.

Use of a small amount of pressure serves two purposes: volumetric loss is prevented and lowering of octane rating is curbed—both through stopping evaporation loss in standing storage.

The Hortonspheroid has proved itself to be a highly practical unit. Installations are being made in rapidly increasing numbers in all parts of the world. From a cost standpoint, the unique design results in a favorable balance of economy with capacity.

Hortonspheroids for handling motor fuels are available in standard sizes ranging from 10,000 to 100,000 barrels or more. Where smaller capacity of higher pressure is desired, as in handling natural gasoline, units are available in standard sizes from 2,500 to 30,000 bbl. For complete information, address our nearest office.

The HORTON



CHICAGO BRIDGE & IRON COMPANY

Dallas	1441 Liberty Bank Building	Philadelphia	1615-1700 Walnut Street Building
Houston	2919 Main Street	Boston	1517 Consolidated Gas Building
Tulsa	1606 Hunt Building	San Francisco	1054 Rialto Building
Birmingham	1536 North Fiftieth Street	Los Angeles	1423 Wm. Fox Building
Chicago	2128 Old Colony Building	Cleveland	2204 Rockefeller Building
Detroit	1514 Lafayette Building	New York	3347-165 Broadway Building

FABRICATING PLANTS in Birmingham, Chicago, and Greenville, Pa.

LICENSEES: The Motherwell Bridge & Engineering Co., Ltd., Motherwell, Scotland; The Whessoe Foundry & Engineering Co., Ltd., London, England; Worms & Cie., Paris, France; Compagnie Tecnica Industrie Petroli S.A.I. Rome, Italy.

SPHEROID

about this process as applicable to Britain. The British government invited certain important industrial concerns to establish a plant in England. This project, however, failed, and the committee concluded that there was a divergence of views in regard to: (1) The value of the process to Britain; (2) the stage reached in developing the process; or (3) the procedure to be followed for establishing the process there. The first two possibilities are of importance.

The second point to observe is the prevalence of uncertainty about many claims made by those who advocate the establishment of such a plant. Thus the committee is forced to repeat again and

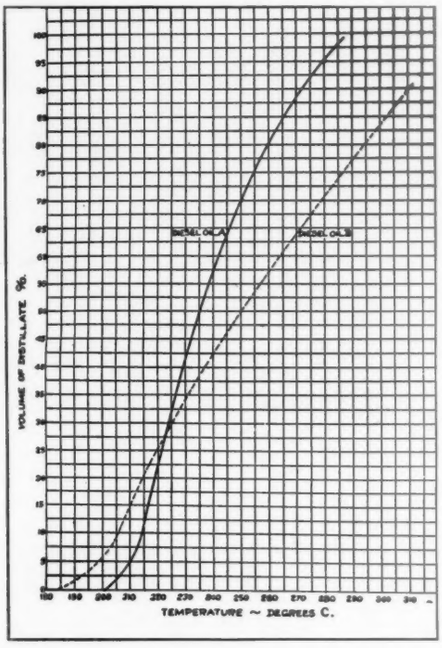


Fig. 2—Distillation curve of diesel oils

again the warning that no data have yet been found to substantiate rigorously the claims and suggestions made with regard to the raw materials, the yields, quality and treatment of primary and secondary products, and the costs and economics of the processes. Thus the following table is given as an *estimate:*

YIELD OF PRODUCTS FROM A PLANT PRODUCING 35,000 TONS OF PRIMARY PRODUCTS PER YEAR

Product:	Estimated quantity, tons	Estimated realized price	Estimated value at works
Liquefiable gases	3,500	*$50.00	$175,000
Light petrol (up to 140° C.)	12,180	†22.49	1,090,105
Diesel oil (140-340° C.)	17,185	‡†25.95	1,585,935
Paraffin wax (above 340° C.)	2,135	*$75.00	160,125
Total	35,000		$3,011,165

*Per ton. †Cents per gallon. ‡The price of diesel oil takes into account the value of this oil as a blending agent to convert tar oils (at present unsuitable by themselves as diesel oils) into suitable diesel oils.

Another table, however, gives for a plant producing 62,400 tons of primary products per annum widely-differing estimates: Light condensable hydrocarbons at 24.22 cents per gallon, petrol at 20.76 cents per gallon, diesel oil at 13.84 cents per gallon and soft paraffin wax at $125 per ton, giving an estimated value at works of $4,441,375 for 62,400 tons of primary products.

With the same characteristic uncertainty the capital costs for different plants are presented: 20,000-ton plant (including coke ovens), $5,000,000 to $7,500,000; 35,000-ton plant (A) including coke ovens, $9,505,000; (B) direct gasification of coal in gas water plant, $8,585,000; 60,000-ton plant (including coke ovens and distillation plant), $15,500,000.

The costs of production are given at an average of 22.49 cents per gallon (value between 22.06 and 25.95 cents depending on period allowed for amortization of capital). Another witness disagreed; but finally it was concluded that the costs of production would not be less than those of the hydrogenation process. Thus government assistance would be necessary for the process to be established in Britain.

The committee found that the process does not at present offer a very hopeful prospect of increasing employment in the British coal industry. The probable capital cost per man is in excess of $5,000 while the exchequer would sustain an annual loss of $1,250 per man employed. This, it must be admitted, is not beneficial for national interests.

Nevertheless, from a point of view of technical and industrial development, it was urged that experimental plants and research should be established in Britain. The plant should be designed for the production of not less than 20,000 to 30,000 tons of primary products annually; but if financial assistance is requested from the British government, the assistance should be limited to sums required for special items of research work which can be recommended as of national interest.

Acknowledgement

The author is indebted to Prof. A. W. Nash for the very considerable data which he has put before him and for the permission to publish this paper.

References

1. F. Fischer (Trans. G. W. Anderson) Colliery Guardian (1936), *CLI*, 719.
2. T. P. Hilditch and C. C. Hall, "Catalytic Processes in Applied Chemistry." (1937). Chapman & Hall, Ltd.
3. H. Pichler, Brenn. Chem. (1935), *16*, 404; K. Peters and K. Winzer, Brenn. Chem. (1936), *17*, 301.
4. H. Koch and G. Ibing, Brenn. Chem. (1935), *16*, 185, 261.
5. H. Koch, Z. ver. Deutch. Ing. (1936), *80*, 19.
6. F. Fischer, H. Koch and K. Wiedeking, Brenn. Chem. (1934), *15*, 229.
7. F. Fischer, Brenn. Chem. (1935), *16*, 1.
8. A. Thau, Colliery Guardian (1935), *CL*, 335.
9. R. Taylor, Gas World (Coking Section) (1936), *104*, 12.
10. I. G. Farb. A.-G. F.P. 790,873/1935.
11. G. T. Morgan, Trans. Soc. Glass Tech. (1932), *16*, 272.
12. G. T. Morgan, Chem. and Ind. (1937), *LVI* (No. 5), 103.
13. P. Sabatier, F.P. 354,621/1905; 355,900/1905; 400,656/1908.
14. E. Erdman, J. Gasbeleuchtung (1911), *54*, 737.
15. L. Vignon, F.P. 416,699/1909; 469,907/1913; 477,083/1914.
16. E. F. Armstrong and T. P. Hilditch, Proc. Roy. Soc., A. (1923), *103*, 25.
17. K. Meyer and O. Horn, Gesamm. Abh. Kohle (1934), *11*, 389.
18. J. J. S. Sebastian, Carnegie Inst. Tech., Coal Res. Lab., Contribution No. 35 (1936).
19. B.A.S.F., G.P. 293,787/1913; I. G. Farb. A.-G., G.P. 441,433/1923.
20. G. Patart, F.P. 540,543/1921; Compt. Rend. (1924), *179*, 1330; Chim. et Ind. (1925), *13*, 179.
21. E. Audibert, Chim. et Ind. (1925), *13*, 186.
22. E. Audibert and A. Raineau, Ind. Eng. Chem. (1928), *20*, 1105.
23. G. T. Morgan, R. Taylor and T. J. Hedley, J.S.C.I. (1928), *47*, 117T.
24. D. S. Cryder and P. K. Frolich, Ind. Eng. Chem. (1929), *21*, 867.
25. Synthetic Ammonia and Nitrates, Ltd., E.P., 293,056/1926.
26. F. Fischer and H. Tropsch, Brenn. Chem. (1923), *4*, 276; (1924), *5*, 201; 1926), *7*, 97; (1927), *8*, 165.
27. F. Fischer and H. Tropsch, Ber. (1926), *59*, 830, 832, 923.
28. F. Fischer and H. Tropsch, "Die Umwandlung der Kohle in Ole" (1924), Vol. 2, p. 246.
29. G. T. Morgan, D. V. N. Hardy and R. A. Proctor, J.S.C.I. (1932), *51*, 1T.
30. G. T. Morgan, Bull. Soc. Chim. Belgique (1936), Tome 45, 287.
31. P. K. Frolich, Ind. Eng. Chem. (1931), *23*, 111.
32. G. D. Graves, Ind. Eng. Chem. (1931), *23*, 1381.
33. D. V. N. Hardy, J. Chem. Soc. (1936), 358-365.
34. C. Ellis, "The Chemistry of Petroleum Derivatives," Vol. 2 (1937), Reinhold Pub. Corp.
35. D. F. Smith, Ind. Eng. Chem. (1927), *19*, 801; chem. abs. (1927), *21*, 2783; Brit. Chem. Abs. *B*. (1927), 593.
36. F. Fischer and H. Koch, Brenn. Chem. (1932), *13*, 61.
37. A. W. Nash, J.S.C.I. (1926), *XLV* (No. 48), 876.
38. E.P., 254,760/1926.
39. O. C. Elvins and A. W. Nash, Nature (1926), *118*, 154.
40. O. C. Elvins and A. W. Nash, Fuel (1926), *5*, 263.
41. O. C. Elvins, J.S.C.I. (1927), *XLVI* (No. 52), 473T.
42. F. Fischer and H. Tropsch, E.P., 254,288/1926.
43. Studieu U. Verwertungs G.m.b.H., E.P. 452,417/1936.
44. F. Fischer, O. Roelen and W. Feisst, Brenn. Chem. (1932), *13*, 461.
45. F. Fischer and H. Pichler, Brenn. Chem. (1936), *17*, 24.
46. H. Kemmer, Angew. Chem. (1936), *49*, 133.
47. E. Audibert and A. Raineau, Ann. Office. Combustible Liquid (1927), 4th part.
48. A. W. Gauger, J.A.C.S. (1924), *46*, 474.
49. J. H. Wolfenden, Proc. Roy. Soc., A110 (1926), 464.
50. Kistiakowski, J. Phys. Chem. (1926), *30*, 1356.
51. E. K. Rideal, J. Inst. Pet. Tech. (1938), *24*, 221.
52. W. W. Myddleton, Advance Copy of Paper presented at Institute of Fuel, May 12, 1938. [Cf. Oil News (1938), *XLIII*, 368].
53. A. W. Nash, Mining and Petroleum Technical Magazine (University of Birmingham) (1938).
54. Committee of Imperial Defense, Subcommittee on Oil From Coal Report, February, 1938.

Diesel Engines Cheap and Efficient Railroad Fuel

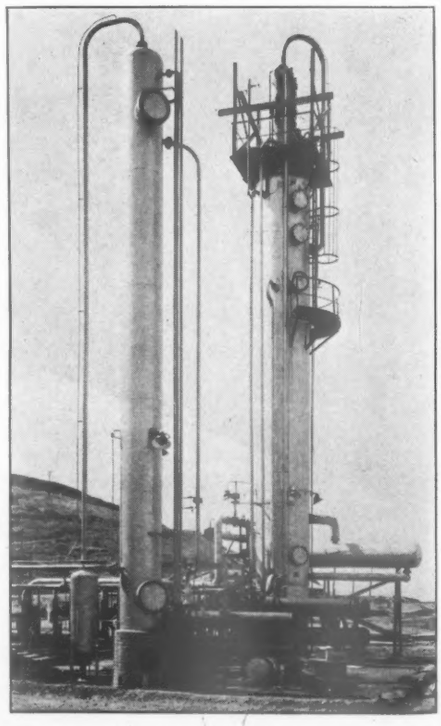
Speaking before the Pacific Traffic Association in San Francisco, H. S. Wall, Santa Fe mechanical superintendent, said: "When we look back a few years it seems remarkable that locomotive runs were limited to 150 miles or less. Yet today within the working years of most of you, we now see the run of a diesel locomotive extended from one division to a run over 2,000 miles. More remarkable is the fact that the Santa Fe diesels are doing this successfully in spite of the fact that some of them operate 25,000 miles per month.

Fuel records submitted to the Interstate Commerce Commission show that the Santa Fe 3,600-horsepower diesel pulling the crack Super Chief averages 8¼ cents per mile for fuel in comparison to 17 cents per mile for a steam-drawn passenger train.

In five round trips between Chicago and Los Angeles each month, Santa Fe's new Super Chief diesels use 88,000 gallons of fuel each.

Recommended specifications for diesel fuel oil are shown below:

Gravity, min.	26
Flash, min.	150
Vis. S.U., max.	60
Carbon residue, per cent, max.	0.5
Sulfur, total, max.	0.5
Pour point, max.	10
B.S.&W., max.	0.1



Hydrogen purification equipment in the Standard Oil Co. of California's new hydrogenation plant in the Richmond refinery

WHY
SPECIFY PRICE-WELDED FIELD JOINTS
FOR YOUR
PIPE LINES?

1. H. C. Price Co. specializes in one pipe line operation only — the electric welding of field joints. By so doing we have been able to concentrate our entire efforts to the improvement and efficiency of pipe line welding.

2. H. C. Price Co., because of a continuous volume of business, is able to continuously employ the same field personnel, thus assuring you of experienced pipe line welders and supervision.

3. H. C. Price Co. has sufficient welding and transportation equipment to complete your pipe line projects, large or small, at any speed required and at any location in the United States.

4. H. C. Price Co. has successfully electric welded over 6,800 miles of pipe lines since 1928.

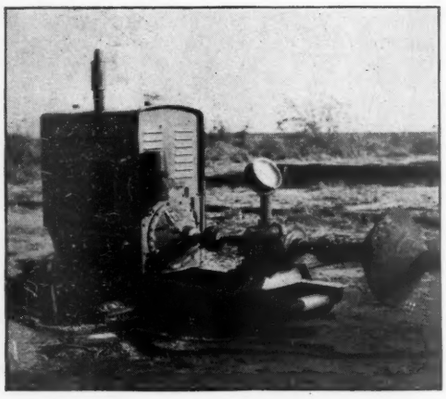
AND

THE WELD IS THE VITAL PART OF THE PIPE LINE
BE SURE OF THE BEST—IT COSTS NO MORE

H. C. PRICE CO.
BARTLESVILLE, OKLA.

LOS ANGELES SAN FRANCISCO

ROTARY TYPE PUMP IN PIPE LINE SERVICE



Pumping unit in New Mexico rated at 50 b.h.p. at 1,400 r.p.m. developing a pressure of 600 pounds per square inch

Trailer unit located in West Texas rated at 61 b.h.p. at 1,600 r.p.m. and exerting a liquid pressure of 600 pounds per square inch

By Irving H. Buck
The Guiberson Corp.

Positive displacement rotary pipe line pumps have been used in gathering service for several years. They were first used in stationary installations and later extended to portable gathering system units, mounted on trailers, or trucks and using the truck motor for power. The efficient and economical handling of either low or high viscous oils at volumes up to 7,680 bbls. per day with pressures from 600 to 800 pounds in continuous 24-hour service typifies their service record.

This unit was originally known as the Pigott rotary pump. It was developed and perfected by R. J. S. Pigott, a member of the Gulf Research & Development Corp. at Pittsburgh, Pa. After much laboratory and experimental field installation testing, the pump was taken over for manufacture by Guiberson Corp. in January, 1938.

The first published information on this pump appeared on page 52 of the August 13, 1936, issue of The Oil and Gas Journal, in an article by Paul Reed, entitled "Oil Pump Developed by Gulf Proves Successful in Pipe Line Service." Here many of the details of construction, together with results of early installations, are reviewed.

The success of this type of rotary pipe line pump over earlier designs lies largely in the fact that a positive tooth seal is effected in the rotary gear. Being shaft-driven through a clutch from the power source, the 8-tooth pinion rotates within a 9-tooth ported ring gear, which itself turns on the pinion as an idler. The profile of the rotary gear, as shown in two positions in Figure 1, follows the pattern of the logarithmic spiral Tight meshing of the pinion and ring gear teeth at the top or at the end of the discharge port and upper abutment of the pump, together with the close fit of the tips of two pairs of opposite teeth at the lower side, provides effective barriers between the suction and discharge ports. As will be seen from the figure, in operation the space between the teeth opens steadily on the suction side as they come out of mesh, and on the discharge side of the lower abutment the space between the teeth closes steadily as the teeth mesh. This separation of the inlet and outlet portions of the unit is further assured by the close fit of the ring gear in the pump casing, and permits a suction lift of from 20 feet or more into the rotary pump.

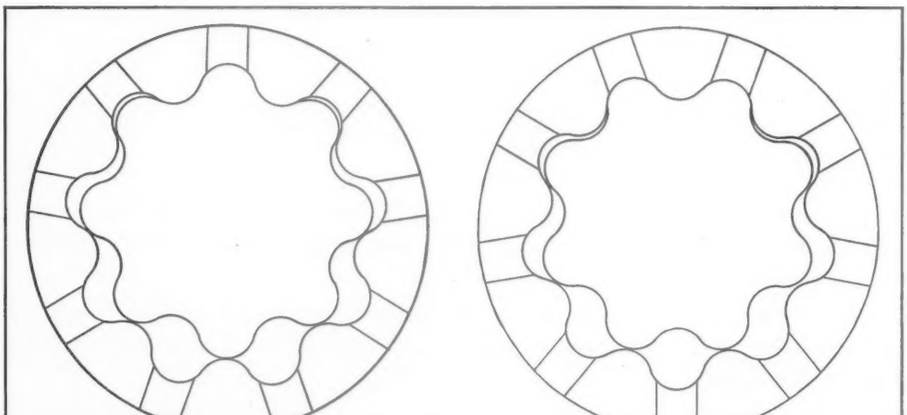


Fig. 1—Profile of rotary gear, following the pattern of a logarithmic spiral

In as much as this is a positive displacement type of rotary pump, the discharge volumes vary directly with the pitch diameter and thickness of the rotary gear. Table 1 sets out in tabular form the four general sizes of rotary pump used in gathering services, from which it will be noted the marked differences in volumes, with accompanying decreases in speed, due to increased pitch diameter and thickness of the rotary gear.

The smooth meshing of the gears, regardless of speed, naturally assists in obtaining high efficiencies at high pressures, and long life under continuous operation. Continued high speeds are made further possible because of the durable hardened steel used in gear construction. Any corrosive action on the gear unit is also prevented by the use of this material.

The flow into the discharge line is free from pulsations due to the positive displacement action within the gears. While pumping crudes which have a large amount of gas in solution, a centrifugal pump, acting as a booster at the suction end, is installed in the unit to prevent any possible cavitation.

Flexibility is afforded this type of pump either by acceleration of the power source, or through gear advantages obtained through a clutch or a transmission unit.

Diesel, gasoline or electric motors, or small gas engines, may be used as a power source on this type rotary pipe line pump. Power is trans-

TABLE 1—CONSTRUCTION AND PERFORMANCE DATA ON ROTARY PUMPS (100 SAYBOLT LUBE OIL)

Inlet and outlet sizes—inches		Rotary gear			300 lbs. pressure			450 lbs. pressure			600 lbs. pressure		
Suction	Discharge	Pitch dia. (in.)	Thickness (in.)	R.p.m.	Bbls./day	Hp. req'd.	Vol. eff.	Bbls./day	Hp. req'd.	Vol.eff.	Bbls./day	Hp. req'd.	Vol. eff.
1½	1½	2	1½	1,750	478	3.6	82.9	442	5.2	76.9	408	6.7	71.2
				3,600	1,088	8.9	91.7	1,050	12.0	88.8	1,018	15.1	86.0
2	2	3	2¼	1,180	1,149	8.0	87.4	1,088	10.5	82.6	1,025	14.9	78.0
				2,400	2,490	18.9	93.1	2,420	26.0	90.3	2,345	33.1	87.7
3	2½	4	3	860	2,016	13.8	88.1	1,909	20.0	83.4	1,790	26.0	78.5
				1,750	4,370	31.8	93.9	4,265	44.5	91.6	4,150	56.6	89.0
4	3	6	3	690	3,739	26.1	91.3	3,625	37.2	88.4	3,528	48.2	85.9
				1,160	6,365	48.0	92.5	6,200	66.1	89.9	6,090	85.2	88.3

Pump assembled on truck and capable of developing 600 pounds pressure at 1,800 r.p.m. Truck is in use in the new K.M.A. field of Texas

mitted through a direct shaft drive by flexible coupling from the clutch to the pump shaft. The horsepower requirements for different volumes and speeds are shown in Table 1.

The light weight of the rotary type pipe line pump makes it particularly suitable for portable gathering service. It has been mounted on skids and direct connected to gasoline or diesel motors, then unitized on a two-wheel trailer. This assembly can then be pulled around from lease to lease to pump out tanks of oil situated at low places in the field with respect to the main gathering system. Other portable installations have been made upon trucks, direct connected to the truck motor. By placing the pump near the front of the truck bed, the usefulness of the truck for other oil field service is not seriously hampered, and the expense of a special motor is saved. At the present time a great deal of the K.M.A. field crude from individual batteries which will not gravitate into the pump station tanks is boosted by use of portable rotary pumps.

Although all rotary pipe line pump installations have been on gathering line service to date, larger capacity pumps are being designed to handle volumes up to 36,000 bbls. per day at 1,000 pounds maximum continuous operating pressure, and still maintain direct connection feature to large power units, with even higher overall efficiencies.

Motor Clinics Prove Need for Correlating Engine and Fuel

Low-priced cars have displaced the larger luxury models as the principal potential users of high-octane gasoline, studies by engineers of the Ethyl Gasoline Corp. operating a nationwide network of motor clinics disclose. With the average compression ratios of 1938 models of Ford, Chevrolet and Plymouth higher than the average of the 20 makes of automobiles produced in the United States, 64 per cent of the growing American market for antiknock motor fuel resides in "the big three" in the low-cost field, the clinic engineers find.

To aid in solving problems centering around the elimination of evils resulting from the use of fuel unsuited to high compression engines is the objective of the Ethyl motor clinics in which automotive and petroleum groups in 100 cities will participate during 1938. Clinics are now functioning in Philadelphia, Cleveland, Los Angeles, Indianapolis, Kingston, N. Y., Pittsburgh, and Wichita, Kans.

The ravages wrought by misfit fuel in high compression cars as shown in tests by the U. S. Bureau of Standards, are portrayed in the educational program of the clinics. Seeking to ascertain the results of engine knocking, the federal scientists used a high compression Liberty motor, fueled with a poor grade gasoline of low octane rating. The motor was run at high speed. Knocking began soon after the motor reached normal temperature and continued for six hours, after which it was stopped and disassembled. It was found that the engine had literally knocked itself to pieces. The pistons were badly cracked, the connecting rods bent, and the cylinder walls scorched. Thousands of members of the oil and automotive industries are studying at the clinics the results of the government experiment.

Although these results are improbable in the ordinary automobile because the Liberty motor test was run under extremely adverse conditions. the experiment, according to engineers, showed definitely that knocking will exert undue wear on engine parts.

To interpret developments in automotive science, the clinic engineers, employing elaborate and specially designed apparatus, demonstrate how automobile designers by decreasing the space inside the engine combustion chamber have been able to boost the compression ratio of the cheaper and smaller engine without increasing its size. Under the old practice, it is brought out, engine efficiency could be achieved only by increasing the size and weight of the motor.

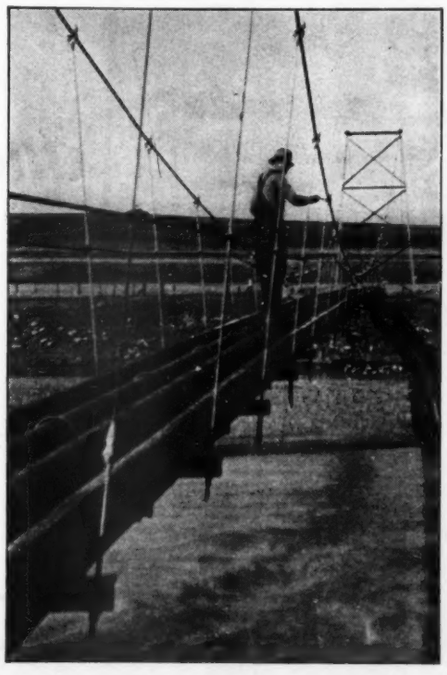
The smaller space given to fuel mixtures in the high compression engines creates a greater pressure at a higher temperature, thereby delivering more of the heat value to the actual work of the rear wheels.

To illustrate the working of this principle, clinic engineers describe what actually happens when the piston moves up and down in the cylinder of a high compression engine having a ratio of 6 to 1. At the bottom of the stroke, the induced charge of the fuel mixture is represented by a quantity of 6 pints; however, when the piston is at the top of the stroke, the same charge is compressed into a space represented by 1 pint. By the same formula, if the charge of fuel mixture is compressed into one-seventh of the original space, the engine has a compression ratio of 7 to 1.

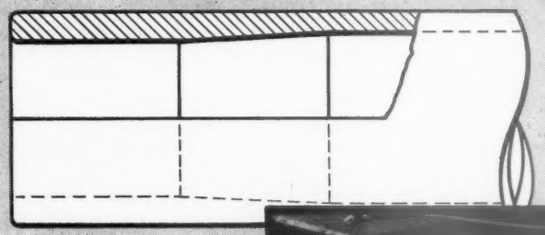
Engines of two extremes are utilized in the clinics to indicate the relationship between fuel and high compression. The high compression engine of today is typified by a special racing engine with a compression ratio of 9 to 1 and a maximum of 200 horsepower, while an old Model T Ford of 25 horsepower serves as an example of the low compression engine. To equal the output of the racing special, the size and weight of the old low compression Ford would have to be increased eight times, it is pointed out.

Precautionary Bridge Proves Value Early During Flood

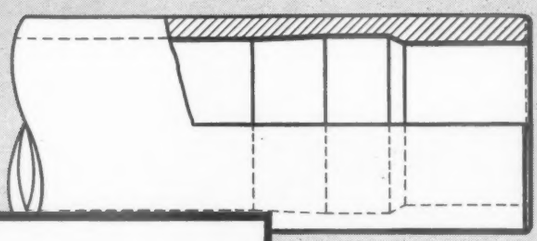
In the accompanying photograph is shown a portion of the Shell Oil Co.'s pipe line system in California. This section is suspended from a bridge which crosses the Los Banos Creek in Merced County. When the line was constructed 18 months ago, the bridge was considered an "unnecessary precaution." Recently, however, the narrow and



seemingly peaceful water course turned into a raging torrent which rose to the bottom of the bridge. Men had to work all of one night on the bridge to keep logs from forming a dam against the structure. The emergency was met by good engineering.



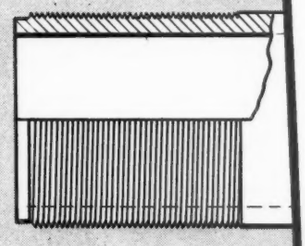
EXPANDING TYPE
PLAIN INTERNAL UPSET



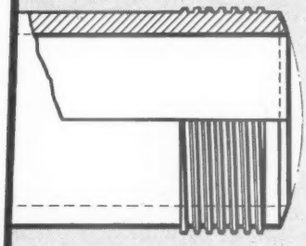
EXPANDING TYPE
INTERNAL UPSET
& MACHINED

B&W Still Tubes

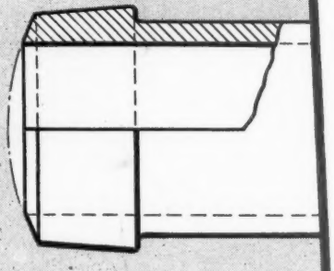
with Upset and Machined Ends



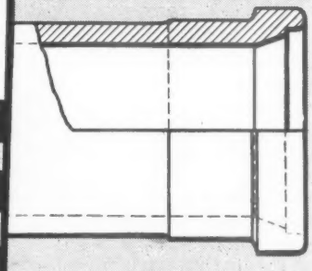
NON-EXPANDING TYPE
THREADED ENDS



NON-EXPANDING TYPE
UPSET & THREADED



NON-EXPANDING TYPE
RADIUS END
BALL JOINT



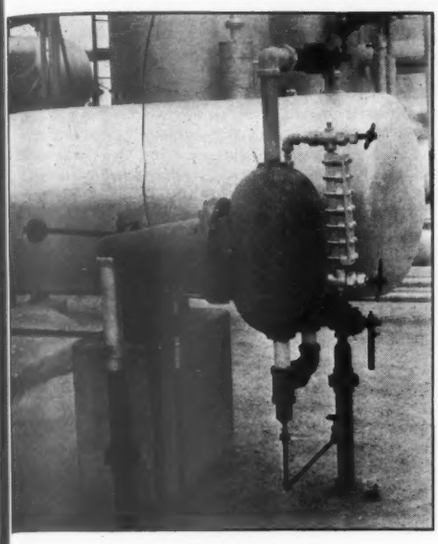
NON-EXPANDING TYPE
RADIUS END

THE BABCOCK & WILCOX TUBE COMPANY, BEAVER FALLS, PA.

T-66

BABCOCK & WILCOX TUBES

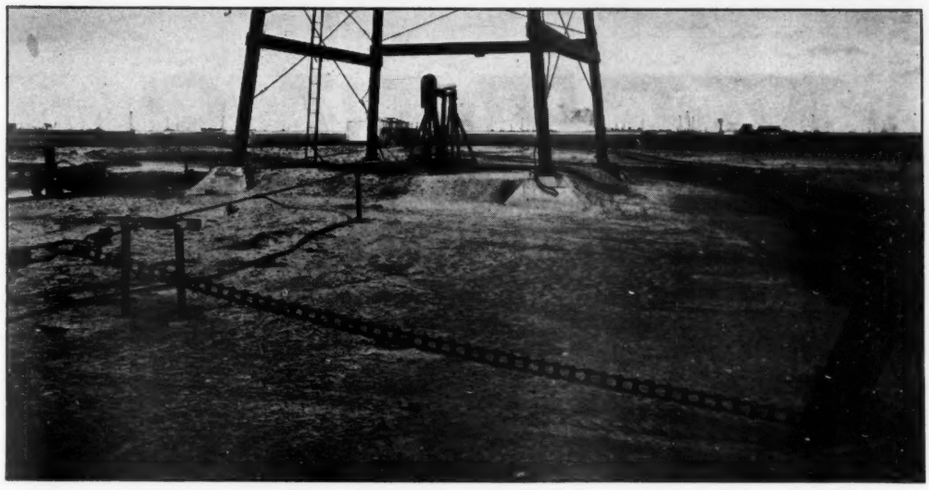
OPERATING IDEAS



Valve Support

An oil company operating several gasoline plants on the Gulf Coast has built supports on all kidney valves to eliminate the stress and strain on fittings supporting the valve.

Old Drilling Chain Used to Change Course of Rod Line



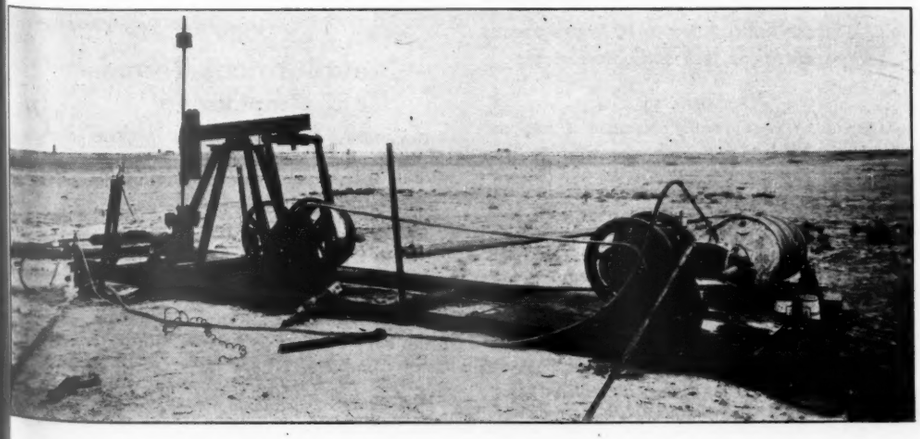
In the Panhandle field, one operator made use of an old drilling chain in the manner shown to slightly change the course of a rod line. It was impossible for the line from the back-side-crank well to run straight to this jack because of intermediate buildings. As it approached the jack well, slightly out of line, this chain was used to slightly deflect the line's direction by hooking onto a circle link, to which U-bolts in each direction connect to rod line.

Sand Reel as Pulling Hoist

An operator in Webster Parish, Louisiana, who pumps wells from the 5,000-foot sand, has rigged up a sand reel to replace the bull wheel in servicing a well. The advantage of this over the bull wheel is that a wire line may be used. He keeps the reel on this unit as the investment is relatively small.

Gasoline Engine Replaces Windmill on Water Well

A complete water-well jack, gasoline engine with belt drive, mounted on skids, was installed by one operator at a drilling well in the Vacuum field of New Mexico. All drilling water is obtained from wells in that territory, and inasmuch as windmills over the water wells already dug will not supply sufficient volumes, they are moved off temporarily while this portable water well pumping unit is set on location. After completion of drilling on this particular lease, the windmill will be replaced as the supply then will be adequate.



Guide for Cathead Ropes

An inexpensive guide for cathead ropes, the materials for which can be found in any production machine shop, has been devised by one company in the Seminole field. As is shown in the accompanying photograph the guide is installed on the bed on the truck, in line and to the rear of the cathead, so that the line is always fed to run from the cathead in a straight line. The rollers of the guide are made from short pieces of used 1½-inch pipe and the under portion of the guide is 1¼-inch round steel, welded to the I-beam of the pulling unit and to truck bed.

Progress in METALS

By W. L. NELSON

A.S.T.M. Accumulates Corrosion Data

Since 1931 the A.S.T.M. has been accumulating atmospheric corrosion data on non-ferrous materials exposed in nine typical localities of the United States. The latest report on the specimens was presented by Committee B-3 at the Atlantic City meeting of the society ending July 1, 1938.

Three examinations have been made since 1931 and it is contemplated that additional examinations will be made during a 25-year period. The specimens were examined for change in weight, for change in tensile strength and elongation, and by visual inspection. The report consists essentially of tabulations of results, times of test, and meteorological data, and hence the reader is referred to the Proceedings American Society Testing Materials, Vol. 38, Part I (1938). These tests are a valuable contribution and as further data are accumulated they will assume even greater importance as a means of judging the properties of non-ferrous metals.

Rupture Tests for Pipestill Tubes

Abstract: White and Clark, Report on Acceptability for High Temperature Characteristics, Appendix IV from Report of Committee of A.S.T.M. on the Effect of Temperature on the Properties of Metals. July 1, 1938.

Further experimental data, similar to that given on Page 86 of The Oil and Gas Journal, December 9, 1937, on the time and stress for rupture at elevated temperatures is presented.

In time it is hoped that a relationship between short-time tests and the long and cumbersome creep tests that are now in use can be developed. As yet, creep data on the particular steels that are discussed here have not been completed, and hence it is impossible now to draw conclusions of the relation of creep to short-time rupture.

Short-time rupture tests are conducted with a regular tension test machine except that a furnace is mounted around the test specimen to maintain a high temperature. A series of tests are conducted at different loads but at the same temperature, and thus a record of rupture time against stress is available. Such a chart is shown in Figure 1, plotted on logarithmic paper, for a 4-6 chromium molybdenum steel. On such paper the time-rupture line is straight unless scaling of the tube takes place. Similar curves for the four steels shown in Table 1 are given in the original report. Another method of plotting is shown in Figure 2. Here, the

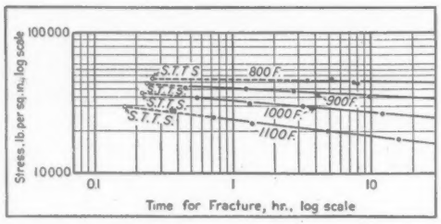


Fig. 1—Stress-rupture characteristics of 4 to 6 per cent chromium-molybdenum steel
S.T.T.S., short time tensile strength at indicated temperatures

rupture strengths at 10 hours' time for different materials is compared at different temperatures.

An obvious direct use for such data is to determine the time that a tube can be held at an excessive temperature without failure. Thus, if the normal temperature

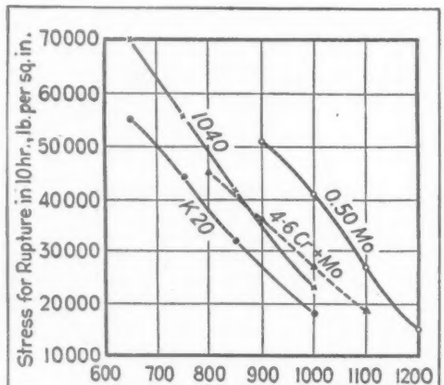


Fig. 2—Stress for rupture in 10 hours versus temperature for four indicated steels

of operation is 800° F. and the tube attains a temperature of 1,000° F., due to faulty operation, the tube may fail in only a few hours.

TABLE 1—DESCRIPTION OF STEELS INVESTIGATED

Steel designation	Type of melting furnace	Heat treatment (°F.)	Chemical composition, per cent: Carbon	Manganese	Silicon	Chromium	Molybdenum	Sulfur	Phosphorus	Brinell hardness
K20	Open hearth	(*)	0.35	0.55	0.19	...	...	0.030	0.016	129
1040	Open hearth	Annealed 1550	0.43	0.68	0.20	...	...	0.033	0.035	167
0.5 Mo.	Open hearth	Drawn 1350	0.146	0.54	0.21	...	0.53	0.018	0.015	121
4 to 6 Cr Mo	Electric arc	Annealed 1525	0.092	0.43	0.21	4.79	0.51	0.016	0.010	126

*Heat treatment consisted of following steps:
1. Heated to 1,550° F. in two hours, held one hour and furnace cooled to 1,000° F., from which temperature the bars were air cooled.
2. Reheated to 1,280° F. in four hours, held two hours and furnace cooled to 1,000° F., then air cooled.
3. After straightening bars, heated to 950° and air cooled.
4. Bars again reheated to 950° F. and air cooled.

No Test As Important As Actual Service

The general development in the testing of metals is toward service tests rather than laboratory classification tests. To the layman or even engineer, the common tests of tensile strength, hardness, elongation, elastic limit, etc., have in the past been utilized as measuring sticks by which metals could be appraised—and yet all too often these tests have not accurately portrayed the behavior of the materials during service. This situation may be easily explained. The aforementioned tests are in many instances only classification or identification tests and are not intended by metallographists as specifications of how the material will behave in service. However, it is obvious that such tests are of tremendous importance in controlling and governing fabrication processes.

The tendency now is to develop service tests which are definitely related to the performance of the material when in service—and it is a healthy sign that metallurgical laboratories are recognizing more fully the fact that performance on the job is the primary purpose of their organizations. Among the service tests that are closely allied to performance are creep tests, fatigue tests, rupture tests, bend tests, and many others that cannot be dignified by a special name because they are developed for testing the suitability of the material for a specific service. An example of a test for a specific purpose is the collapse tests given on Page 65 of The Oil and Gas Journal of June 30, 1938.

Creep strength is a good example of a test that is patterned directly after commercial requirements. The test consists essentially of stressing the metal at a temperature similar to that which it must sustain in service, and measuring the amount of elongation. At some low stress the material does not deform more than 1 per cent in 10,000 hours and this stress is referred to as the creep strength. Thus, the test requires almost as long a time as that required in service and in fact differs from actual service only because test conditions and measurements are facilitated by conducting the test in the laboratory. Further developments in this direction are high-temperature rupture tests which are also a simulation of the situation that often arises in plant operation—namely, overheating during a short period of a faulty operation. The creep strength and rupture strength of regular carbon steel at 1,000° F. is only a few thousand pounds as compared with a tensile strength of 60,000 pounds and hence it is obvious that creep tests fill a real need.

Fatigue tests are also a deliberate attempt to duplicate actual service conditions. Whereas the tensile strength of regular steel is about 60,000 pounds, the fatigue strength will be less than half as great and under certain conditions may be only 12,000 pounds per square inch. This test is conducted by repeatedly stressing the material in a manner similar to that which will develop during service.

A careful and comprehensive record by industry of the actual behavior of metal parts in service would serve much the same purpose. However, actual service is so fraught with uncontrollable or dissimilar variable conditions, that such compilations are difficult of interpretation. No test is as important to the metal manufacturer as actual service and hence the more nearly our laboratory tests can simulate field conditions the more significant they become.

Metallurgical Terms—Graphitizing

Graphitizing is defined by the A.S.T.M. and the S.A.E. as, "a type of annealing for gray cast iron whereby some or all of the combined carbon is transformed to free or uncombined carbon."

Combined carbon in the form of iron carbide or pearlite in cast iron, renders the iron hard and brittle and if the combined carbon exceeds about 1 per cent, it may be impossible to machine the iron with regular tools and equipment. In contrast, graphite is a soft friable material, and when dispersed through the iron in the form of thin flakes, tends to make machining of the iron a simple operation and makes the iron less brittle. If the graphite particles are left in an exceedingly fine dispersion, the physical properties of the cast iron begin to approach those of the steel.

QUESTIONS ON TECHNOLOGY

By Charles K. Francis, Ph. D., Technical Editor

Federal Standard Stock Catalog Specifications for Oil Products

What is the Standard Stock Catalog which contains specifications for petroleum oils? Under what authority is it published?—H. S. N.

The Federal Standard Stock Catalog is a publication of the United States government, distributed through the U. S. Government Printing Office, Washington, D. C., containing specifications for supplies purchased for the use of the several departments. These specifications are prepared by a Federal Specifications Executive Committee, replacing the former Federal Specifications Board, and are known as federal specifications.

There are numerous articles and substances described in the catalog, which are arranged in groups, each being designated by symbol number and title, of which these are examples: SS-A-671, Cut-Back Asphalt for Road Work. VV-O-381, Long-Time-Burning Illuminating Oil.

The petroleum products are described under Group VV in section IV part 5. Each product is described in a separate leaflet or pamphlet sold for 5 cents. The index for the Federal Standard Stock Catalog, section IV, Federal Specifications, costs 10 cents and the Methods for Sampling and Testing, VV-L-791a, 15 cents.

Application of Catalysts in Industrial Operations

I would deeply appreciate your describing the physical shape and manner in which the catalysts are incorporated in the process. Is the catalyst exposed to the vapor stream as thin sheets of metal or in some other shape? I recall that the catalyst in one process had been sprayed on coke.—J. A. W.

Industrial plants commonly use a catalyst in the form of a thin film supported on the surface of some inert material. Such materials are called carriers or supporters. The support is often granular to present a large surface, requiring a minimum quantity of the catalyst. Numerous sorts of materials are used, frequently the support is soaked in a solution of the active material, or it may be coated by spraying on a solution of the catalyst. sometimes by spreading on a paste or by chemical action, such as soaking in one solution then in another which precipitates the catalyst within or on the carrier.

There are many catalysts, varying from light, through gases, liquids, solids and metals in several forms. A perfectly dry mixture of reacting substances will show no action, but the introduction of a trace of water will cause the reaction to proceed. The important metal catalysts include platinum, vanadium, copper, nickel, zinc, cadmium, and iron.

The carriers include asbestos, slag wool, glass wool, porcelain, quartz, coke, silica gel and other forms of silica, brick and tile and many others.

Marek-Hahn give an example of how a carrier may be used, with a description of infusorial earth.

"Infusorial earth, a compacted mass of siliceous fossils deposited by sedimentation processes, presents unique characteristics. It has a very high, useful porosity due to the enormous numbers of inter-fossil spaces. During calcination of the silica fossils some of the porosity may be destroyed but the calcined material still possesses a very high degree of porosity. The surface exposure is enormous due to the flake-like structure of the porous individual fossil shapes. This material may be used as a support in a number of different ways. The earth may be moistened, molded by pressure into various shapes, calcined for increased strength, and then impregnated with the catalyst. The catalyst may be mixed with the disintegrated earth and the whole molded or formed into granules. For liquid reactions, such as the hydrogenation of vegetable oils, the catalyst may be deposited on the disintegrated earth particles and used as a suspension."

Reference: Marek-Hahn, Catalytic Oxidation of Organic Compounds in the Vapor Phase, page 26.

Refinery Gas as Source of Carbon Monoxide for Methanol Synthesis

I wish to know what is the process for making methanol from refinery waste gases in which the starting material is carbon monoxide? It is my understanding that several of the larger refineries make carbon monoxide for this purpose.—A. S. V.

Carbon monoxide is important in a number of chemical syntheses, so any industrial operation producing it or obtaining it as a by-product is always of interest. Blast furnace gas contains 26 per cent carbon monoxide, one of the cheapest sources when the furnaces are located near the plant which makes use of it. The waste gases of a refinery today are in most instances only the flue gases which do not contain enough carbon monoxide to serve as a supply.

The reaction of steam and the hydrocarbons is available. Krase has reported that the Standard Oil Co. of Louisiana derives hydrogen and carbon monoxide from a reaction between natural gas and steam. The Standard Oil Co. of New Jersey utilizes refinery still gases in a similar way. The process operates at 1,600° to 1,800° F., with the pressure between 1 and 15 pounds per square inch, in the presence of catalysts.

The original synthetic process for producing methanol was patented by Patart in 1921, who heated hydrogen and carbon monoxide at a moderate temperature in the presence of a catalyst composed of 90 per cent copper oxide and 10 per cent zinc oxide. At atmospheric pressure and 716° F., in the presence of nickel, methane and carbon dioxide form, according to

$$2\,CO + 2\,H_2 = CH_4 + CO_2.$$

This is of course an undesirable result. However, Patart maintaining the carbon monoxide to hydrogen in the proportion 1 to 2.2, with the copper oxide-zinc oxide catalyst, succeeded in having the reaction proceed

$$CO + 2\,H_2 = CH_3OH.$$

The yield of methanol tends to be lowered as the temperature is raised, but is increased with added pressure. At 392° F. and 300 atmospheres, absolute, the yield is 85.62 per cent; at the same temperature and 600 atmospheres it is 90.7 per cent.

The original catalyst of Patart has been replaced with an improved catalyst composed of zinc oxide and 10 per cent chromium oxide. This catalyst serves to hasten the reaction without aiding the formation of side products. The gas must be purified to the extent that it is free from sulfur, carbonyls and arsenic.

The first step in the manufacture of methanol is compression of the gas. Next it passes to a converter, the surfaces of which are either aluminum or copper, where it is heated. The exit gas is cooled and liquefied in a separator, from which any unconverted gas is returned to the compressor. The conversion is around 20 per cent. The critical temperature is 464° F., the critical pressure 78.7 atmospheres, so a slight cooling of the gas is sufficient for liquefaction. The reaction is exothermic, furnishing the required heat without outside heat, after once started.

Riegel gives a good description of the methanol synthesis.

References: N. W. Krase, Carbon Monoxide for Chemical Synthesis, Amer. Inst. Chem. Engs., Baltimore, Nov. 11-13, 1936. Patart patents and early history of synthetic methanol, see Ind. Eng. Chem. 17,430, 859,981, 1925. Riegel, Industrial Chemistry, page 400.

CHEMICALS FOR THE PETROLEUM INDUSTRY

Beeswax

Use—Grease, candle making and special products.

Form—White to yellow amorphous solid.

Specific gravity—0.965-9.969.

Melting point—145.4 to 147.2° F.

Solubility—Ordinary organic solvents.

LIMITATIONS

Color	Yellow
Melting point, max.	150° F.
Paraffin wax	None
Dirt and solids	None

Analysis of Crude Oil From Talco Field, Texas

We are particularly anxious to have an analysis of the oil from the Talco field. Please let us have this information.—J. J. C.

The Talco field is located in Titus and Franklin counties, Texas. The U. S. Bureau of Mines has furnished the analyses of two samples of this oil. They are quite similar, so only one is given here.

ANALYSIS OF TALCO FIELD OIL

Gravity, A.P.I.	24.5
Total sulfur, per cent	2.77
S. U. vis. at 100° F., sec.	200
Carbon residue, per cent	8.0
Pourpoint	Below 5° F.
Color	Brownish black
Distillation:	**Per cent**
Gasoline, light	3.7
Gravity, A.P.I., 80.	
Gasoline, total	13.6
Gravity, 63.7.	
Kerosene	12.9
Gravity, 42.8	
Gas oil	32.7
Nonviscous lube distillate	10.5
Gravity, 31 to 26.3.	
Medium lube distillate	7.0
Residuum	46.6
Gravity, 10.1.	

This oil produced from the Paluxy sand, about 4,200 feet, is a wax-bearing paraffin-intermediate base oil. The sulfur content is high.

PROBLEMS FROM READERS

Edited by L. G. E. Bignell

Minimum Pipe Line Temperature of East Texas Crude Oils

I should be greatly obliged if you will kindly let me know what is the lowest temperature at which East Texas crude oil may be pumped through pipe lines.—C. I. C.

In reply to your letter I find the following data on East Texas crude oil in a paper by Dr. F. H. Lahee published in Petroleum Transactions of the A.I.M.E., 1932, page 288.

"Its average gravity is 39.1 A.P.I. with variations as low as 38 to as high as 40.5. It is dark brown, especially in the western part of the field, with a tendency toward a somewhat more greenish brown color further west.

LABORATORY DISTILLATION AND ANALYSIS OF EAST TEXAS CRUDE

Product—	Pctg. of crude—Sample No. 1	Sample No. 2
Gasoline (56-57 deg. sp. gr.)	40.7	39.8
Kerosene (40-41 deg. sp. gr.)	1.1	1.5
Gas oil	22.2	22.3
Lubricating distillate	5.6	5.6
Residuum (19-20 deg. sp. gr.)	27.8	27.9
Fixed gases	1.0	1.0
Loss	1.6	1.9

Wax content is estimated at 2 to 2.5 per cent.

TESTS ON CRUDE SAMPLE

Specific gravity	39.1	38.7
Sulfur, per cent	0.25	0.27
Pourpoint	45.00	...

"Pourpoints of samples examined ranged from 25 to 45° F. suggesting that paraffin trouble may be experienced in cold weather. However, laboratory tests indicated that the paraffin, if it separates out of the oil, may be easily liquefied again by the application of moderate heat."

The pourpoint of this crude oil will establish approximate temperature at which the oil can be pumped through pipe lines. However, it has been found in practice that if the oil is agitated it will remain in fluid state at temperatures much below the pourpoint as established by laboratory tests.

Light Color for Oil Tanks

Do you have any statistics on the relative merits of white and aluminum paints as used on crude oil storage tanks as compared with dark colored paints? Can you give me reference to some of these articles?—E. U. O.

There has been much work done on the investigation of the relative values of light and dark colored paints on crude oil and finished products storage tanks. Without doubt the light colors are better adapted for the painting of tanks used for these purposes because they reflect instead of absorbing the heat from the sun's rays. The U. S. Bureau of Mines has led in this investigation work and has published a number of bulletins and technical publications on the result of their work.

In the bureau's study of evaporation losses, many tests were made on tanks painted various colors. The results of the following test may be considered typical for a battery of lease tanks.

"Temperature observations made during the month of May on three 250-bbl. lease tanks show the average daily temperature variation in the vapor space for a tank painted red was 48° F. For one painted aluminum 35° F. and for one equipped with a tank house the temperature variation was only 26° F. The economic value of light-color over dark is shown by the run tickets for these tanks for the month of May, June, July and August. During those months the run tickets averaged gravity of 36.34 degrees A.P.I. for oil from the housed tank with only 9 per cent of the oil being under 36 degrees A.P.I. gravity. For the aluminum painted tank the average gravity was 36.21 degrees A.P.I. with 14 per cent of oil run being under 36 degrees A.P.I., whereas the oil from the red painted tank had an average gravity of 36 degrees A.P.I. and 37.5 per cent of the oil run was under 36 A.P.I. gravity. At the time of this test 36 A.P.I. gravity oil was one of the dividing lines of the posted prices for crude oil in the Mid-Continent."

It follows that the operator received a lower price for 37.5 per cent of the oil run from the red tank as compared with 14 per cent on the oil run from the light painted tank. More details of this test can be found in U. S. Bureau of Mines Bulletin 379, pages 37-40 inclusive.

Deeper Pay Sands in Oklahoma

What books or pamphlets can I obtain on the geology of the deeper formations of the Seminole district, Oklahoma? Apparently data and prospecting below 5,000 feet has not been carried on very extensively in Oklahoma outside of the Oklahoma City field.—J. I. F.

Your assumption that there has not been much drilling in Oklahoma below 5,000 feet outside of the Oklahoma City field is in error because there are several other oil fields in the state producing from below 5,000 feet and some of them below 6,000 feet.

The fields producing from below 5,000 feet in Oklahoma are listed below:

Field and county—	Total depth	Top of producing formation
Binger, Caddo	10,000	9,900
North Britton, Oklahoma	6,706	6,547
South Britton, Oklahoma	6,749	6,609
Crescent, Logan	6,219	6,190
Fox-Simpson, Carter	8,037	7,950
Hoyt, Lincoln	5,100	....
Langston, Logan	5,145	5,100
West Lovell, Logan	6,150	....
North Lucien, Noble	5,389	5,373
Lucien, Noble	5,200	5,000
Marshall, Logan	6,039	....
Nicoma Park, Oklahoma	6,200	6,140
Oklahoma City, Oklahoma:		
Wilcox	6,500	6,350
Lower Simpson	5,850	....
Arbuckle	6,500	6,100
Highley	6,659	6,650

For geology about the Seminole area you are referred to several excellent papers printed in "Structures of Typical Oil Fields," a book published by the American Association of Petroleum Geologists. Another one of the A.A.P.G. publications which should be of interest to you because of the general information contained therein on Seminole area is "Problems of Petroleum Geology."

There is a general discussion of the Seminole area in the Oklahoma Geological Survey Bulletin No. 40 and there are other papers and articles on the region published in trade and technical papers. As a matter of fact there is ample geology on the area and a good deal of it has been covered by geophysical exploration and much of it drilled to the crystalline rocks in checking out possibilities of deeper pay horizons. There is a lot of work to be done to test deeper horizons where oil and gas may exist in other parts of Oklahoma but the work is slow in getting under way.

Change in Gravity of Oil as Field Ages

Can you furnish me with any material on the trends of the oil gravity during the life of a field from the time of discovery through the flowing and pumping life and to abandonment. This question has been prompted by a discussion and data on this point are scarce and I would appreciate your help in this matter.—R. D. M.

The data you desire is a little hard to find in the records of oil companies because it would be necessary to go through a lot of files to trace the gravity of the oil produced from a lease over a long period of time. It is, of course, generally assumed that oil becomes gradually of lower gravity as the field attains age. As the gas in solution in the oil escapes the oil thickens and the gravity increases. But to secure direct proof of this is quite a problem.

We did learn that oil in some of the wells in the Keifer field, Oklahoma, discovered in 1905, ran about 38 to 39 gravity when opened but about 15 years later after it had been on a vacuum for several years was about 32 degrees gravity. This is a very general statement and hardly enough to prove your particular point.

Your problem is of interest and effort will be made to check it further and report later on facts developed. There are a number of factors entering into the answer because if the sampling and laboratory work was not based upon uniform methods the data will not prove of much real value.

Super-compressibility of Gases

We are interested in securing a list of articles which may have been published by The Oil and Gas Journal dealing with the super-compressibility of gases.—R. H. L.

We have no records indicating that we have published any specific article in The Oil and Gas Journal on super-compressibility of gases but we give you the following references to some technical papers which may aid in your study although it is admitted they do not all fulfill your requirements.

Compressibility Isotherms of Methane at Pressures to 1,000 Atmospheres and at Temperatures from 70 to 200 deg. C. Hamline, Kvalness and Gaddy, Jour. Amer. Chem. Soc. (February 1931).

U. S. Bureau of Mines Technical Paper 158 (1917).

An Apparatus and Method of Determining the Compressibility of a Gas and the Correction for Super-compressibility. H. S. Bean, U. S. Bur. Standards Journal of Research R. P. 170, Vol. 4 (1930).

U. S. Bureau of Mines Technical Paper 131 (1916).

Determining Compressibility of a Gas. H. S. Bean, The Oil and Gas Journal, January 16, p. 42.

Deviation of Natural Gas From Boyle's Law. T. W. Johnson and W. B. Berwald, U. S. Bur. of Mines Technical Paper 539 (1932).

Mont.
Wyo.
Kan.
Mo.
Ill.
Ky.
Okla.
Ark.
La.
Texas
From the executive offices in Dallas to our field men scattered throughout the oil country, "Serving the Oil and Gas Industries" has become more than a slogan. It is a guiding principle . . . a rule of action governing every Continental employee.
Whatever your drilling or production problems might be, the entire Continental organization stands ready to serve you.
At Your Service
THE CONTINENTAL SUPPLY COMPANY . . . DALLAS, TEXAS

Service Station Prices for Gasoline Showed Little Change This Year

By D. H. STORMONT

The average service station price of regular grade (middle octane) gasoline showed but little change during the first six months of 1938 according to figures based on the 50 representative cities list. On January 1, 1938, the average price, exclusive of all federal, state and other taxes, was 14.08 cents per gallon. On July 1 the price was also 14.08 cents and during the six-month period the average varied less than .2 cent per gallon. Thus while the refined price of motor fuels showed a great change during this period, the service-station market failed to reflect the decreases in gasoline prices and the dealer and station operator profited to that extent.

The average price of the 50-cities list during the first six months of 1938 was 14.07 cents a gallon, over .3 cent lower than in the like period of 1937 and .33 cent below the 1937 average of 14.40 cents. Comparatively few price changes were shown during the period under survey, and with the exception of minor local adjustments there was only one major change. This was the result of new freight rates going into effect March 28 which added roughly 10 per cent to transportation costs. To offset this raise dealer prices were advanced from .3 to .5 cent in most of the Central and Southeastern states the last of March.

Few Price Changes

With the exception of Wichita, Kans., where the service station price has been weak due to intermittent price wars, and in a few other cities, prices continued on an even keel. In fact, in 15 cities of the list shown in the accompanying table prices were unchanged throughout the period, and only a few show over two changes.

A month-by-month survey of the average price of the 50-cities list shows that only a few changes were made in January, resulting in the price declining from 14.08 to 14.07 cents per gallon. Continued weakness at several points lowered the average to 13.99 cents on March 1 and then as a result of the freight rate increase it increased to 14.12 cents on April 1. The next two months saw the price slowly falling off and then in June as the motoring season acted to strengthen the market, prices moved slowly upward to the July 1 average of 14.08 cents.

All cities on the list, excepting those on the West Coast, now show the dealer price plus the normal dealer margin. This was caused by practically all companies adopting the Iowa or dealer marketing plan under which they no longer set the price at which gasoline shall be sold, as was done under the company-owned basis of operation. Thus in some instances the station operator may be underselling the price derived by adding the normal dealer margin to the dealer price, in which case the service station price may temporarily differ from the estimated price. Such action, however, usually results in a lowering of the whole price structure and the dealer price is lowered accordingly.

In tables showing service station prices by geographical groupings it may be seen that two of the sections, Central and West Coast, the average price was the same on July 1 as on January 1. The Atlantic and New England average shows a gain of .1 cent in the period, the Southeastern group a .2 cent decline and the Midwestern group a .2 cent decline. Of the 50 cities on the list, 22 were paying more for their gasoline on July 1, 12 were paying less than on January 1 and in 16 the price was the same.

No changes in state gasoline taxes were made during the half-year so that the average tax remained unchanged at 5.42 cents per gallon.

Year-to-Year Trend of Retail Gasoline Prices

Average Service Station Prices in Cents in 50 Representative Cities, Exclusive of Tax

	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938
January 1	18.32	17.23	14.56	12.87	12.54	14.32	12.90	13.70	14.09	14.08
February 1	17.59	16.96	14.83	12.97	11.63	13.87	13.16	14.21	14.10	14.07
March 1	17.21	16.28	14.86	12.91	11.49	14.18	13.22	14.22	14.46	13.99
April 1	17.38	15.92	13.68	13.18	11.58	13.57	13.28	13.87	14.47	14.12
May 1	17.48	16.95	12.40	13.59	11.60	13.55	13.64	14.27	14.55	14.08
June 1	18.32	17.01	12.21	13.68	10.82	13.93	13.90	14.31	14.58	14.05
July 1	18.48	16.56	12.46	14.21	13.06	14.06	14.00	14.26	14.42	14.08
August 1	18.22	16.47	12.41	14.02	13.52	13.98	14.10	14.24	14.54	...
September 1	18.22	16.26	12.21	13.65	14.00	13.89	13.78	14.21	14.53	...
October 1	18.32	15.93	12.34	12.46	14.45	13.55	13.42	14.07	14.49	....
November 1	17.84	15.41	12.32	13.04	14.30	11.92	13.46	13.99	14.45	...
December 1	17.51	14.96	12.89	12.96	14.17	12.43	13.69	13.97	14.13	....
Average	17.91	16.33	13.09	13.30	12.76	13.60	13.55	14.11	14.40	14.07

Comparison of Net Service Station Prices January 1, 1938, and July 1, 1938

Atlantic and New England States

	Jan. 1, 1938	July 1, 1938
Portland, Me.	13.0	13.5
Burlington, Vt.	13.0	13.9
Hartford, Conn.	13.1	13.1
Springfield, Mass.	13.0	13.0
New York, N. Y.	13.0	13.0
Philadelphia, Pa.	11.75	12.25
Providence, R. I.	12.8	12.5
Newark, N. J.	12.25	12.9
Baltimore, Md.	12.75	12.75
Dover, Del.	13.0	12.0
Washington, D. C.	13.0	13.0
Average	12.8	12.9

Southeastern

	Jan. 1, 1938	July 1, 1938
Norfolk, Va.	13.75	13.25
Charleston, W. Va.	14.55	14.55
Louisville, Ky.	14.0	14.9
Memphis, Tenn.	14.25	13.5
Atlanta, Ga.	15.0	14.0
Charlotte, N. C.	15.15	15.15
Charleston, S. C.	13.75	13.75
Jackson, Miss.	14.0	14.0
Birmingham, Ala.	15.0	14.5
New Orleans, La.	13.25	12.5
Jacksonville, Fla.	13.0	13.5
Average	14.1	13.9

Central

Fargo, N. D.	14.7	15.2
Huron, S. D.	14.1	14.5
Wichita, Kans.	11.9	10.1
Omaha, Neb.	13.7	14.0
Tulsa, Okla.	14.0	14.0
Dallas, Tex.	13.5	13.0
Little Rock, Ark.	13.75	13.25
Kansas City, Mo.	12.6	12.9
Des Moines, Iowa	13.1	13.4
Duluth, Minn.	14.0	14.4
Minneapolis, Minn.	13.7	14.0
Milwaukee, Wis.	13.5	13.8
Chicago, Ill.	12.8	13.1
Peoria, Ill.	13.3	13.6
Detroit, Mich	13.1	13.3
Indianapolis, Ind.	13.9	14.3
Cleveland, Ohio	13.5	14.0
Average	13.5	13.5

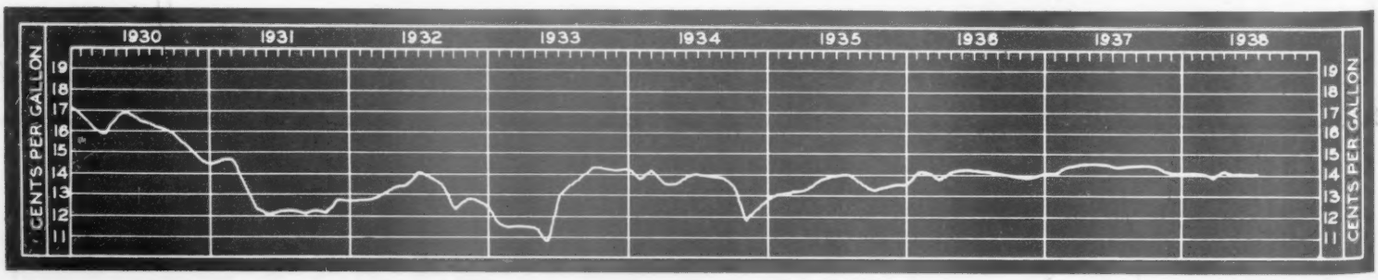
Midwestern

Helena, Mont.	17.5	18.0
Boise, Idaho	19.5	19.5
Casper, Wyo.	16.0	16.0
Reno, Nev.	16.0	16.5
Salt Lake City, Utah	18.5	17.0
Denver, Colo.	15.5	14.5
Phoenix, Ariz.	16.0	16.5
Albuquerque, N. M.	15.0	15.0
Average	16.8	16.6

Western Coast

San Francisco, Calif	14.5	14.5
Portland, Ore.	15.0	15.0
Seattle, Wash.	15.0	15.0
Average	14.8	14.8

Trend of Gasoline Service Station Prices, Exclusive of Taxes, in 50 Representative Cities Throughout the United States



Service Station Prices During First Six Months of 1938 in Fifty Representatives Cities

Gasoline Taxes in Effect January 1, 1938 and July 1, 1938

	Price Jan. 1, 1938	January	February		March			April	May	June		Price July 1, 1938	Tax Jan. 1, 1938	Tax July 1, 1938
Birmingham, Ala.	15.0	....	2/25 14.5	2/26 14.0	....	....	....	....	....	6/20 14.5	....	14.5	8.0	8.0
Phoenix, Ariz.	16.0	....	....	....	....	....	....	4/12 16.5	....	....	....	16.5	6.0	6.0
Little Rock, Ark.	13.75	....	2/16 13.25	....	....	....	....	....	....	....	....	13.25	7.5	7.5
San Francisco, Calif.	14.5	....	....	....	....	....	....	....	....	....	....	14.5	4.0	4.0
Denver, Colo.	15.5	....	....	....	3/10 14.5	....	....	....	....	....	....	14.5	5.0	5.0
Hartford, Conn.	13.1	....	....	....	....	....	....	....	....	....	....	13.1	4.0	4.0
Washington, D. C.	13.0	....	....	....	....	....	....	....	....	....	....	13.0	3.0	3.0
Dover, Del.	13.0	....	2/2 12.5	....	....	....	....	4/19 12.0	....	....	....	12.0	5.0	5.0
Jacksonville, Fla.	13.0	1/6 13.5	....	....	....	....	....	....	....	6/6 12.5	6/20 13.5	13.5	8.0	8.0
Atlanta, Ga.	15.0	....	....	....	....	....	....	....	5/9 14.0	6/10 13.0	6/20 14.0	14.0	7.0	7.0
Boise, Idaho	19.5	....	....	....	....	....	....	....	....	....	....	19.5	6.0	6.0
Chicago, Ill.	12.8	....	....	....	3/28 13.1	....	....	....	....	....	....	13.1	4.0	4.0
Peoria, Ill.	13.3	....	....	....	3/28 13.6	....	....	....	....	....	....	13.6	4.0	4.0
Indianapolis, Ind.	13.9	....	....	....	3/28 14.3	....	....	....	....	....	....	14.3	5.0	5.0
Des Moines, Iowa	13.1	....	....	....	3/28 13.4	....	....	....	....	....	....	13.4	4.0	4.0
Wichita, Kans.	11.9	1/25 10.5	....	....	3/15 11.9	3/23 12.1	3/28 12.4	4/16 11.5	5/16 11.1	6/30 10.1	....	10.1	4.0	4.0
Louisville, Ky.	14.0	....	....	....	....	....	....	....	....	....	....	14.0	6.0	6.0
New Orleans, La.	13.25	....	2/15 12.5	....	....	....	....	....	....	....	....	12.5	10.0	10.0
Portland, Me.	13.0	....	....	....	3/30 13.5	....	....	....	....	....	....	13.5	5.0	5.0
Baltimore, Md.	12.75	....	....	....	....	....	....	....	....	....	....	12.75	5.0	5.0
Springfield, Mass.	13.0	....	....	....	3/31 13.5	....	....	4/28 13.0	....	....	....	13.0	4.0	4.0
Detroit, Mich.	13.1	....	....	....	3/28 13.3	....	....	....	....	....	....	13.3	4.0	4.0
Duluth, Minn.	14.0	....	....	....	3/28 14.4	....	....	....	....	....	....	14.4	5.0	5.0
Minneapolis, Minn.	13.7	....	....	....	3/28 14.0	....	....	....	....	....	....	14.0	5.0	5.0
Jackson, Miss.	14.0	....	2/25 13.5	....	....	....	....	....	....	6/20 14.0	....	14.0	7.0	7.0
Kansas City, Mo.	12.6	....	....	....	3/28 12.9	....	....	....	....	....	....	12.9	4.0	4.0
Helena, Mont.	17.5	....	....	....	....	....	....	....	5/2 18.0	....	....	18.0	6.0	6.0
Omaha, Neb.	13.7	....	....	....	3/31 14.0	....	....	....	....	....	....	14.0	6.0	6.0
Reno, Nev.	16.0	....	....	....	....	....	....	4/12 16.5	....	....	....	16.5	5.0	5.0
Newark, N. J.	12.25	....	....	....	....	....	....	....	....	6/1 12.9	....	12.9	4.0	4.0
Albuquerque, N. M.	15.0	....	....	....	....	....	....	....	....	....	....	15.0	6.5	6.5
New York, N. Y.	13.0	....	....	....	....	....	....	....	....	....	....	13.0	5.0	5.0
Charlotte, N. C.	15.15	....	....	....	....	....	....	....	....	....	....	15.15	7.0	7.0
Fargo, N. D.	14.7	....	....	....	3/28 15.2	....	....	....	....	....	....	15.2	4.0	4.0
Cleveland, Ohio	13.5	....	....	....	....	....	....	4/4 14.0	....	....	....	14.0	5.0	5.0
Tulsa, Okla.	14.0	....	....	....	....	....	....	....	....	....	....	14.0	5.0	5.0
Portland, Ore.	15.0	....	....	....	....	....	....	....	....	....	....	15.0	6.0	6.0
Philadelphia, Pa.	11.75	....	....	....	3/3 12.25	....	....	....	....	....	....	12.25	5.0	5.0
Providence, R. I.	12.8	....	....	....	....	....	....	....	5/5 12.5	....	....	12.5	4.0	4.0
Charleston, S. C.	13.75	....	....	....	....	....	....	....	....	....	....	13.75	7.0	7.0
Huron, S. D.	14.1	....	....	....	3/28 14.5	....	....	....	....	....	....	14.5	5.0	5.0
Memphis, Tenn.	14.25	....	2/15 13.5	....	....	....	....	....	....	....	....	13.5	8.0	8.0
Dallas, Tex.	13.5	....	2/10 14.0	....	3/4 13.0	....	....	....	....	....	....	13.0	5.0	5.0
Salt Lake City, Utah	18.5	....	....	....	....	....	....	4/12 17.0	....	....	....	17.0	5.0	5.0
Burlington, Vt.	13.0	1/17 13.4	....	....	3/30 13.9	....	....	....	....	....	....	13.9	5.0	5.0
Norfolk, Va.	13.75	....	2/23 13.25	....	....	....	....	....	....	....	....	13.25	6.0	6.0
Seattle, Wash.	15.0	....	....	....	....	....	....	....	....	....	....	15.0	6.0	6.0
Charleston, W. Va.	14.55	....	....	....	....	....	....	....	....	....	....	14.55	6.0	6.0
Milwaukee, Wis.	13.5	....	....	....	3/28 13.8	....	....	....	....	....	....	13.8	5.0	5.0
Casper, Wyo.	16.0	....	....	....	....	....	....	....	....	....	....	16.0	5.0	5.0
Average price	14.08	....	....	....	....	....	....	....	....	....	....	14.06	5.42	5.42

Average Prices Received by Refiners Were Lowest Obtained Since 1935

By D. H. STORMONT

Average prices received by refiners for their products during the first six months of 1938 were, with a few exceptions, the lowest obtained since 1935. Motor fuels and bright stocks were the hardest hit of the list of refined products, and the intermediate group, such as kerosene and light heating oils, the least affected. Export markets also felt the effect of the weakened domestic price structure, especially New York and Gulf Coast.

Much of the falling off in prices has been credited to the high rate of crude production and refinery crude runs to stills during most of 1937 and during the earlier part of 1938. Another contributing factor was the business recession starting in the latter part of 1937. However, consumption of most refined oils during the first six months of this year has exceeded that in the like period of 1937 so that the petroleum industry was not as greatly affected as some other industries. Thus the main factor is thought by many to have been one of overproduction.

Situation Last Year

Beginning in early part of 1937 production advanced almost weekly until it was exceeding the current demand. Consumption was exceeding that of 1936 by some 10 per cent, but even this increase was not sufficient to keep crude stocks from rising almost 20,000,000 bbls. in the first six months. With crude runs to stills and crude production at their highest levels in history, the industry encountered the business recession. Unable to curb either the output of crude or refinery runs immediately, the result was that all products, except those seasonally active, lost ground.

The refined oil market entered 1938 in an unstable condition; crude production was above current demand and refiners were still holding their runs at too high levels. As the year progressed steps were taken to bring production under control, but stocks of gasoline continued to advance even more than seasonally despite small reduction in runs to stills. Continued curtailment in crude runs and mounting demand for motor fuel and other refined oils served to strengthen the markets so that by the first of July all products, except those seasonally weak, had regained much of their lost ground.

Prices Substantially Declined

Average prices of all grades of motor fuels for both domestic and foreign markets show substantial declines as compared with the averages of 1936 and 1937. In the Mid-Continent the average prices for the first six months were well over one-half cent below those of last year, resulting in many refiners operating at a loss for several months. Or as many refiners did, close down their plants until conditions were better. In East Texas and Oklahoma especially, several plants were closed down for a few months and several that were closed temporarily will probably never be reopened.

In Pennsylvania and on the seaboard markets gasoline prices fared but little better than in the Mid-Continent. In California low-octane gasoline under survey declined from an average of 7.37 cents in 1937 to 6.90 cents, in Pennsylvania from 5.44 to 4.88 cents, Gulf Coast domestic from 5.98 to 5.25 cents and in the New York market from 7.13 to 6.52 cents. In both California and the Mid-Continent prices of crude remained unchanged so relative earnings of refiners from the manufacture of gasoline were proportionately affected.

Natural gasolines were one of the hardest hit products shown in the accompanying tables, prices in Oklahoma and North Texas being over 1.3 cents below the average of 1937. Movement to refiners for blending into high quality gasolines was about even with that of 1937, but purchases of naturals for blending with naphthas was much lower due to their inability to obtain sufficient quantities of the latter product.

While the motor fuel markets were having their troubles, prices of kerosene, furnace oils and tractor fuels were much the same as last year's in most instances. An exceptionally good season for farming accounted for the showing made by kerosene and tractor fuels, while a continually expanding market aided the consumption of furnace oils. Diesel oils and light fuels also fared well during the first six months, but the heavy fuels showed substantial declines.

Neutral Oils

Prices of neutral oils outside of Pennsylvania averaged practically the same as in 1937, but bright stocks and steam refined stocks suffered great declines in both Pennsylvania and Oklahoma. In Pennsylvania an oversupply of these lubricants, coupled with a weak crude oil market caused by overproduction, reduced the average price of neutrals almost 8 cents and the price of bright stocks about 5½ cents.

A more complete and detailed summary of the average prices of refined products is shown in the accompanying two tables.

AVERAGE YEARLY PRICES ON MOST IMPORTANT REFINERY PRODUCTS, 1929 TO JULY 1, 1938

(Price in Tankcar at Plant)

OKLAHOMA

	First six mos. of 1938	1937	1936	1935	1934	1933	1932	1931	1930	1929
U. S. Motor gasoline (regular grade), per bbl.	$.0510	$.0582	$.0588	$.0492	$.0444	$.0363	$.0392	$.0345	$.0634	$.0775
Natural gasoline, 26-70, per gal.	.0236	.0367	.0361	.0320	.0260	.0290	.0222	.0301	.0524	.0683
41-43 water white kerosene, per gal.	.0415	.0413	.0365	.0353	.0322	.0279	.0315	.0231	.0358	.0517
Below 18 fuel oil, per bbl.	.5961	.7780	.6619	.6232	.5930	.3899	.3250	.2904	.5225	.5260
U.G.I. gas oil, per gal.	.0275	.0289	.0251	.0233	.0201	.0146	.0146	.0127	.0227	.0265
200 vis. neutral, 3 color, per gal. (15-20 cold test)	.1000	.0996	.1043	.1075	.0994	.0845	.0834	.0924	.1059	.0966
124-126 wax (crude scale), per lb.	.0234	.0286	.0245	.0224	.0346	.0253	.0170	.0174	.0216	.0321
150-160 D color bright stock, per gal.	.1554	.1859	.1769	.1496	.2030	.1852	.1837	.1631	.2977	.3368
Crude (36 A.P.I. gravity), per barrel	1.22	1.21	1.10	1.00	1.00	.62	.88	.63	1.23	1.37

CALIFORNIA

	First six mos. of 1938	1937	1936	1935	1934	1933	1932	1931	1930	1929
U. S. Motor gasoline, per gal. (low octane)	$.0690	$.0737	$.0602	$.0552	$.0624	$.0523	$.0546	$.0510	$.0806	$.0849
Natural gasoline, 75-85, 375 e.p., per gal.	.0650	.0676	.0617	.0506	.0575	.0462	.0447	.0418	.0712	.0803
38-43 kerosene, per gal.	.0530	.0432	.0339	.0409	.0458	.0384	.0398	.0425	.0455	.0569
24 plus diesel*	1.32	1.175	1.035	1.084	1.032	.8406	.7432	.7510	.8365	.9000
Crude (25 A.P.I. gravity, Signal Hill), per barrel	1.03	1.03	.997	.85	.94	.84	.83	.76	1.16	1.105

PENNSYLVANIA

	First six mos. of 1938	1937	1936	1935	1934	1933	1932	1931	1930	1929
U. S. Motor gasoline, per gal. (below 60 octane)	$.0488	$.0544	$.0565	$.0521	$.0519	$.0505	$.0568	$.049	$.0737	$.0905
45 water white kerosene, per gal.	.0517	.0507	.0504	.0467	.0448	.0446	.0451	.04	.0501	.0651
Bright stock, 10-15 pour test, per gal.	.1721	.2422	.2361	.1990	.2540	.2407	.2466	.2094	.3373	.4745
Crude (in National Transit Lines), per barrel	2.01	2.64	2.42	2.17	2.47	1.86	1.88	1.81	2.55	3.69

*1935 and earlier prices are on 27 plus diesel.

AVERAGE DOMESTIC AND EXPORT REFINED PRICES OVER PAST THIRTY MONTHS

(QUOTATIONS F.O.B. PLANTS AND TERMINALS)

	1st 6 mos., 1938			1937				1936				
	Average price	High	Low	Av. pr. for yr.	High	Low	1st 6 mos.	2nd 6 mos.	Av. pr. for yr.	High	Low	1st 6 mos.	2nd 6 mos.
GASOLINES—													
Oklahoma (Group 3):													
U. S. Motor grades:													
Regular, 70-72 octane	.0510	.05½	.04⅞	.0582	.06⅛	.05	.0594	.0570	.0588	.06⅛	.05⅜	.0601	.0575
Third grade, below 62 octane	.0417	.04¾	.03⅞	.0475	.05⅛	.04	.0488	.0462	.0485	.05¼	.04½	.0498	.0472
60-62 400 (below 60 octane)	.0417	.04¾	.03⅞	.0475	.05⅛	.04	.0488	.0462	.0485	.05¼	.04½	.0498	.0472
64-66 375	.0465	.04⅞	.04½	.0504	.05¼	.04½	.0513	.0495	.0502	.05⅜	.04⅞	.0525	.0491
North Texas:													
U. S. Motor, below 62 octane	.0418	.04¾	.03⅞	.0475	.05⅛	.04	.0487	.0462	.0485	.05¼	.04⅝	.0496	.0474
64-66 375	.0465	.04⅞	.04½	.0499	.05¼	.04½	.0505	.0494	.0506	.05¼	.04⅞	.0521	.0492
Pennsylvania:													
U. S. Motor, below 60 octane	.0488	.05¼	.04½	.0544	.06	.04½	.0528	.0559	.0565	.05⅞	.05¼	.0562	.0568
California:													
54-58, U. S. Motor	.0690	.07½	.06¾	.0737	.07½	.07	.0725	.0750	.0602	.07	.03¾	.0504	.0700
New York (Bayonne, N. J.):													
U. S. Motor, below 65 octane	.0652	.07	.06¼	.0713	.07½	.06½	.0692	.0733	.0673	.70	.06½	.0688	.0658
65 octane and above	.0673	.07⅛	.06½	.0745	.08	.06¾	.0721	.0769	.0698	.07¼	.06¾	.0713	.0683
Gulf Coast (domestic):													
U. S. Motor, below 65 octane	.0525	.05⅜	.05⅛	.0598	.06½	.05⅜	.0587	.0609	.0581	.06	.05⅜	.0576	.0585
U. S. Motor, 65 octane and above	.0549	.05½	.05⅜	.0620	.06½	.05½	.0619	.0620	.0600	.06⅛	.05⅝	.0596	.0604
NAPHTHAS—													
Pennsylvania:													
50-52 450 (blending)	.0467	.04¾	.04½	.0532	.05⅞	.04⅜	.0514	.0551	.0550	.05¾	.05⅛	.0550	.0551
NATURAL GASOLINES—													
Oklahoma (Group 3):													
Grade 26-70	.0236	.03	.02	.0367	.04½	.03	.0337	.0397	.0361	.04¾	.02½	.0310	.0411
Grade 18-55	.0280	.03½	.02⅜	.0439	.05⅜	.03½	.0405	.0473	.0431	.05⅜	.03	.0375	.0487
California:													
75-85 375-390	.0650	.06¾	.06½	.0676	.07	.06¾	.0677	.0675	.0617	.07	.04¾	.0533	.0700
KEROSENE—													
Oklahoma (Group 3):													
41-43 water white	.0415	.04¼	.04⅛	.0413	.04¼	.03⅞	.0416	.0410	.0365	.04½	.03⅛	.0394	.0336
North Texas:													
41-43 water white	.0415	.04¼	.04⅛	.0417	.04⅜	.03⅞	.0422	.0412	.0369	.04⅜	.03⅛	.0397	.0341
Pennsylvania:													
45 water white	.0517	.05½	.04⅞	.0507	.05½	.04⅝	.0490	.0524	.0504	.05½	.04½	.0529	.0478
California:													
38-43 high burning test	.0530	.06	.05¼	.0432	.05½	.03¼	.0384	.0480	.0339	.04	.03¼	.0331	.0347
New York (Bayonne, N. J.):													
41-43 water white	.0567	.0630	.05¼	.0573	.0630	.05	.0556	.0590	.0486	.05¼	.04⅝	.0502	.0470
Gulf Coast:													
41-43 water white	.0461	.05	.03⅞	.0508	.05½	.03¾	.0508	.0507	.0400	.04¾	.03⅞	.0405	.0396
FURNACE OILS AND TRACTOR FUELS—													
Oklahoma Group 3):													
32-36, No. 2 straw	.0351	.03⅞	.03	.0355	.03⅞	.03¼	.0348	.0363	.0313	.03⅝	.02¾	.0322	.0304
38-40, No. 1 straw	.0377	.04	.03⅝	.0372	.04	.03⅝	.0369	.0375	.0329	.03⅝	.02⅞	.0342	.0316
38-42, No. 1 prime white	.0390	.04⅛	.03¾	.0392	.04⅛	.03¾	.0389	.0396	.0343	.03⅞	.03	.0360	.0326
New York (Bayonne, N. J.):													
No. 1	.0578	.0630	.05¼	.0588	.0630	.05½	.0574	.0602	.0484	.05¼	.04½	.0503	.0466
No. 4	.0478	.05¼	.04¼	.0503	.05¼	.04½	.0488	.0519	.0389	.04½	.03½	.0418	.0361
GAS OIL, DIESEL OIL AND FUEL OIL—													
Oklahoma (Group 3):													
U.G.I. gas oil	.0275	.02⅞	.02⅝	.0289	.03⅛	.02¾	.0280	.0298	.0251	.02⅞	.02⅛	.0241	.0261
Below 18 fuel oil, industrial	.5961	.70	.55	.7780	.80	.70	.7831	.7730	.6619	.70	.60	.6288	.6950
California:													
24 plus diesel, per bbl.	1.32	1.50	1.15	1.18	1.50	1.00	1.08	1.29	1.035	1.10	1.00	1.07	1.00
Gulf Coast:													
28-30 diesel (bunkers)*	1.83	1.90	1.55	1.76	1.90	1.50	1.64	1.88	1.54	1.70	1.50	1.59	1.50
New York (Bayonne, N. J.):													
28-30 diesel (lighterage 6¼ cents per bbl.)	1.93	2.20	1.75	2.08	2.20	1.65	1.95	2.20	1.65	1.65	1.65	1.65	1.65
Bunker C (New York harbor)	1.14	1.25	.95	1.27	1.35	1.15	1.22	1.31	1.08	1.15	1.05	1.05	1.11
NEUTRAL OILS—													
Oklahoma (Group 3):													
200, 3 color, 15-20 cold test	.1000	.10	.10	.0996	.10	.09½	.0992	.1000	.1043	.10¾	.09½	.1075	.1012
Pennsylvania:													
200, 3 color, 10 pour test	.1784	.20	.13½	.2567	.29	.21	.2663	.2471	.2281	.24½	.21½	.2269	.2294
Gulf Coast:													
200, 3 pale oil	.0700	.07	.07	.0696	.07	.06½	.0692	.0700	.0672	.07	.06½	.0694	.0650
200, 5-6 red oil	.0725	.07¼	.07¼	.0714	.07¼	.06¾	.0702	.0725	.0675	.07	.06½	.0694	.0655
California:													
200, 2½-3 pale oil	.0725	.07½	.07¼	.0708	.07¼	.06¼	.0697	.0718	.0646	.07¼	.06¼	.0667	.0625
BRIGHT AND STEAM REFINED STOCKS—													
Oklahoma (Group 3):													
150-160, zero to 10, D color	.1554	.16	.14½	.1859	.20	.16	.1938	.1781	.1769	.18½	.17	.1756	.1783
631 green (treated), S.R.	.1348	.13½	.12½	.1583	.17½	.13	.1619	.1546	.1267	.14	.09½	.1179	.1354
Pennsylvania:													
600 S.R.	.0827	.08½	.07	.1374	.17½	.07	.1617	.1131	.1238	.13½	.09½	.1157	.1320
Bright stock, 10 pour test	.1721	.18½	.15	.2422	.28	.18	.2694	.2150	.2361	.24½	.22	.2298	.2425
WAX—													
Oklahoma (Group 3):													
124-126 (crude scale)	.0234	.03	.02⅛	.0286	.03	.02⅝	.0272	.0300	.0245	.02¾	.02¼	.0245	.0245
New York (Bayonne, N. J.):													
125-127 (a.m.p.)	.0441	.0455	.0435	.0455	.0455	.0455	.0455	.0455	.0455	.0455	.0453	.0455	.0455
EXPORT PRICES—													
Gasoline—Gulf Coast:													
U. S. Motor	.0492	.05⅜	.04¾	.0576	.06⅛	.05¼	.0563	.0588	.0528	.05½	.05	.0531	.0525
64-66 375	.0522	.05¾	.04⅞	.0606	.06⅜	.05⅝	.0597	.0615	.0560	.05¾	.05⅜	.0567	.0554
Los Angeles, Calif:													
U. S. Motor, 55-65 octane	.0539	.05¾	.05¼	.0503	.06	.04¾	.0475	.0531	.0450	.04¾	.04	.0429	.0470
U. S. Motor, 65-69 octane	.0589	.06¼	.05¾	.0531	.06¼	.05	.0500	.0561	.0475	.05	.04¼	.0454	.0496
Lubricants—New York (f.a.s. in bbl.):													
600 S. R. unfiltered	.1613	.16½	.15½	.2170	.24	.16½	.2284	.2056	.1898	.20	.16½	.1813	.1984
Bright stock, No. 8 color	.2203	.23½	.16¼	.2994	.32	.23½	.3082	.2906	.2749	.29½	.26	.2633	.2865

*Average price for first 21 weeks only of 1938.

Pipe Line Activity Increases as the First Half of 1938 Closes

While the major pipe line systems have been operated at less than full capacity during the first half of 1938 there has been some extension of the gathering systems and a few pipe lines of importance have been laid. During this period there has been a number of gas pipe lines laid in various parts of the country mostly to serve cities and towns near the gas fields rather than to expand existing gas systems. The usual work of upkeep and maintenance has been carried on which has given employment to a considerable number of men but which does not appear in reports of pipe line activities.

After laying an 8-inch gasoline pipe line from Wood River, Ill., to Indianapolis, Ind., during the latter part of 1937, the Shell Petroleum Corp. decided early this year to extend this system to Lima, Ohio.

There was no important gas line construction undertaken in the Rocky Mountain area. The only known projects under consideration are still in the promotion stage. A. B. Cobb, who completed a large gas well north of the Cut Bank field in Montana in May, has obtained a franchise from the town of Browning and is investigating the feasibility of constructing a 50-mile line with distribution system. Its construction will depend upon results of investigations being made by his engineers.

Rocky Mountain Area

The long-discussed project of a gas line from the Montana fields to Minneapolis, St. Paul and Duluth is still under consideration. In May, Frank W. Murphy, of Minneapolis, made an application to the Reconstruction Finance Corp. for a $52,000,000 loan for the projected line, which would involve 3,200 miles of 16-inch pipe to provide a double line to the Wisconsin iron range. It is under consideration.

The only oil pipe line construction in the Rocky Mountain area reported in the first half of 1938 was an 8-inch 14-mile line from the Vacuum pool in Lea County, New Mexico, southwest to the Lynch station, where it ties in with a 4-mile 4-inch line already in operation. It was built by Texas-New Mexico Pipe Line Co., the contract going to Oklahoma Construction Co., of which T. R. Jones is president.

In the northern area the only construction was gathering lines in the Lance Creek field in Wyoming and the Cut Bank and Kevin-Sunburst fields in Montana. Existing lines in Kevin-Sunburst were extended to a number of wells on the west side which have been without connections since their completion in the past year or two.

The Continental Oil Co. will lay 230 miles of 6-inch pipe to handle crude oil from Lance Creek field, Wyoming, to its refinery in Denver, Colo., at the rate of about 3,500 bbls. per day. This system will cost about $2,000,000 and the work will be completed this summer. The Denver refinery has been handling Lance Creek and other Wyoming oils for some time, but it has been shipped by tankcar. With the direct pipe line between the field and the refinery delivery will be facilitated.

A 12-mile 2-inch line was laid from the Rotan field in Fisher County, West Texas, to connect with Humble Pipe Line Co.'s system in the Roystan field to the west. A new company was formed for this purpose, known as the Fisher County Pipe Line Co. of Abilene.

Perhaps the most important extension line laid in West Texas was that which afforded the rapidly expanding Vacuum field of Lea County, New Mexico, its first outlet. Texas-New Mexico Pipe Line Co. extended its system from the Lynch station near Monument northward 18 miles by an 8-inch line to connect to Vacuum.

Humble Pipe Line Co. laid two pipe lines in West Texas, one an 8-inch trunk carrier line from the Panhandle district southward to the Eastland County booster station at Comyn, and connecting the Lewis, Avoca, Higgs, Sandy Ridge, Guitar and Hawley fields, all of the West Texas area. A second 4-inch line was laid to serve the fields in Jones County and first connected with the Avoca field in the northeastern part of the county. This line connects direct with the Hawley booster station.

In the K.M.A. Field

Over 150 miles of oil and gas gathering lines, and gas residue lines, were laid during the first half of 1938 in the K.M.A. field of northern Texas. Texas Co. was forced to enlarge its facilities to care for the 400 or more new completions made during that period. Most of the gas gathering and residue lines were laid to and from the four new gasoline plants and recycling systems constructed in the field, one by Phillips Petroleum Co. and three by Continental Oil Co.

Lone Star Gas Co. laid an 18-inch 18-mile line from its main line into the Buffalo gas field of Leon County, Texas.

As the half-year closed, preparations were being made for two short extensions to new fields in eastern Texas. Humble Pipe Line Co. will lay a line into the Navarro Crossing field, while Texas Pipe Line Co. will afford the Flag Lake field of Henderson County its first outlet.

Pipe line construction in the Gulf Coast and Southwest Texas districts was limited to a few small projects. Continental Oil Co. completed a 12,000-bbl. capacity 35-mile 6-inch welded oil line from the Villa Platte field in Evangeline Parish to the Tepetate field in Acadia Parish, Louisiana, connecting the field with terminal facilities at Lake Charles.

Right of way and survey plans are being made by Texas Pipe Line Co. for a proposed 250-mile 12-inch oil line from Texas Co. Terrebonne Bay group of fields in southeastern Terrebonne Parish to the Texas Co. refinery at Port Arthur.

Shell Petroleum Corp. laid a short 4-inch oil line from the Jennings field to Acadia Parish, Louisiana, to a connection with its Iowa-Roanoke line to Lake Charles.

Texas Pipe Line Co. completed 9 miles of 6-inch oil line from the West Columbia field to the Old Ocean field in Brazoria County, Texas.

Humble Pipe Line Co. laid 4,500 feet of 8-inch from Mesquite Point in Chambers County to the Cedar Point field in Galveston County, Texas.

A 6-mile gas line was laid from the Santo Domingo gas area in southeastern Starr County, Texas, to the western terminus of Hidalgo Gas Co. system.

Pipe line construction reached a low ebb in California during the first half of 1938 as no major lines were laid and only a few short laterals constructed. Both of the two new fields discovered, Wasco in Kern County and Guijarral Hills in Fresno County, were located in close proximity to existing pipe line facilities. Only about 10 miles of pipe was required to tie into the Continental Oil Co.'s tankage at Wasco, where only one well has been completed up to the present, while at Guijarrel Hills the problem is much simpler. No line has been laid to connect up D. & B. Oil Co.'s new well in the Lomita section of Los Angeles Basin, as the oil is being trucked out to small independent refiners in the basin. No new installations were made in the coastal areas comprising Santa Barbara, Ventura and San Luis Obispo counties, although Petrol Corp. laid a new submarine loading line in the Estero Bay region to permit loading of tankers. This loading line was finished early in the year and has been used to facilitate loading of crude oil from the Gato Ridge field. Crude oil from the Gato Ridge field is trucked to tanks erected on elevated ground at Estero and then flowed by gravity through the submarine loading line to tankers standing about a mile offshore.

No major natural gas lines were laid in California during the first half of 1938, although Texas Co. late in June began construction of a 5-mile 10-inch wet gas line from the west end of the Montebello field to its natural gasoline plant and a parallel 10-inch line to return dry natural gas to the point of origin for use under the boilers of wells being drilled. These two short lines are scheduled for completion by July 10. With the exception of short gathering lines in the Montebello, Rosecrans, Potrero, Torrance and Wilmington fields there were no natural gas lines laid in California during the first half of 1938.

Michigan Construction

New pipe line construction, plus auxiliary lines, to serve Michigan oil fields, ran to a construction cost total of close to $1,000,000 in the first half of 1938. One of the biggest pipe line jobs was that of Bay Pipeline Co., built by a group of independent producers to give a market for their flush production in Buckeye Township of Gladwin County. The 33-mile line links the Buckeye area with a new refinery at Bay City, at the mouth of the Saginaw River. The refinery is owned by the same group of independents, and both pipe line and refinery are the outgrowth of producers' dissatisfaction over reductions in crude prices.

Another of the half year's big pipe line jobs was that of Simrall Corp. and Michigan-Toledo Pipeline Co., which laid a new 6-inch line alongside their 4-inch line between the Crystal field and Mount Pleasant to service the Roosevelt refinery at Mount Pleasant and add to the take of the Michigan-Toledo line for Standard Oil of Ohio refineries at Toledo.

Meantime Simrall Corp. and McClanahan-Leonard Pipeline Co. laid lines to the Edenville area in Midland County to serve that field, and a network of pipe lines was under construction in the Allegan County area to take the Traverse production of the Salem, Monterey and Dorr pools. The Allegan crude goes by pipe line to Muskegon refineries and also to Lake Michigan ports for tankcar shipment to refineries in the Chicago district.

(Continued on Page 116)

Wildcatting Being Stimulated by Results of Exploration

The usual activity in wildcatting continued during the first half of the year intensified in some districts as a result of deeper sand discoveries. Discovery of a salt structure in the Gulf of Mexico has stimulated exploration along the entire shoreline, including inland bays, marshes and even 3 miles out in the Gulf.

OKLAHOMA WILDCATS

As the second half of the year opened, wildcatters had tests started in 36 Oklahoma counties, ranging from Adair County on the extreme east to Ellis and Greer counties on the western border, and from the most northerly to the most southerly row of counties. Hughes, Kay, Pontotoc, Pottawatomie and Seminole counties contained the greater number of these outpost tests. There remains a vast unexplored area in western Oklahoma, but operators appear to prefer to cover the areas between pools in the eastern half of the state before tackling the western prairie counties, where deep drilling will be necessary to uncover formations that pay off in the east. The discovery of small but prolific pools in Payne, Lincoln, Seminole, Pottawatomie and other eastern counties acted as an incentive to wildcatters to confine much of their operations to the better known areas of the state, and these will continue to be the scene of test work for the last half of the year.

KANSAS

Twenty-eight Kansas counties were being tested for oil in outlying areas at the opening of the last half of 1938. Eastern counties like Woodson, Butler, Cowley and Greenwood will be tested, but the greater part of the wildcatting will be in the counties in the western half of the state. Like western Oklahoma, western Kansas has a very large unexplored territory, and even in the counties where oil has been produced for years there is much room for more pools. In Russell County, for example, eight wildcat wells are being drilled; Rooks County has five tests; Barton has six; Rice County three, and Stafford four wildcats. Potential oversupply has held wildcatters back as it is difficult to find a market for oil in remote places when there is so much of it available within the range of the pipe lines.

CENTRAL WEST

Recent discoveries of rich shallow sand production in Illinois has made the basin play in that state more attractive than ever and the last half of 1938 promises to show more wildcat tests drilled than in the first half. In Indiana the movement to explore the basin area has been slow and it remains for some of the few operators there to develop production before there will be much wildcat activity in that state. The Birk City, Kentucky, discovery caused a general movement of big and small companies into that state and a big leasing campaign followed the opening of the McClosky lime pool in Henderson and Daviess counties.

TEXAS GULF COAST

Future wildcatting activities in the Texas Gulf Coast area have been affected by new developments during the first half of the year, which included opening of the first oil field in Galveston Bay, discovery of the first salt dome structure in the Gulf of Mexico, and opening of deeper production from the Wilcox series in two fields along the Conroe trend.

As a result of the opening of the Cedar Point field in Galveston Bay and discovery of a salt structure in the Gulf of Mexico, the entire coast line, extending from Jefferson County on the east, and including inland bays, marshes and 3 miles into the Gulf of Mexico, as far south as Cameron County in the Rio Grande Valley, has been affected and several wildcats have been started, or scheduled to be drilled within the next several months. Practically all acreage along this territory is under lease and much geophysical work continues.

Considerable wildcatting along the Conroe trend is anticipated as a result of deep sand discoveries in the Segno and Cleveland fields in Polk and Liberty counties. The new production was opened from the Wilcox series below 8,000 and 9,000 feet, and extends this type of production approximately 60 miles southwest from the Spurger field in Tyler County, where the first important Cook Mountain production was developed last year. Favorable prospects formerly thought condemned are now considered as having an excellent chance to produce. Wildcatting along this trend of counties has also been stimulated by the increasing number of fields producing from the Upper Saline Bayou formation, found below the Cockfield formation. This comparatively new formation has acquired significance through discovery of the Hardin field in Liberty County and the Fairbanks field in northwestern Harris County. Such counties as Harris, Montgomery, San Jacinto, Polk, Liberty, Hardin, Tyler and Newton counties can be expected to see several deep tests drilled in the future.

SOUTHWEST TEXAS

In the Southwest Texas district, a new type of trend play has been started along the Jackson trend, following the opening of the second Frio sand pool in Jim Wells County. Since completion of H. H. Howell and others No. 1 Lindsay and Reed, 5 miles southwest of the town of Alice, several thousand acres have been leased in a southwest-northeast trend, and approximately five wildcats have been started and locations for several more are reported to have been made. The play has extended as far south as Hidalgo County and north as far as Refugio County. This particular trend is in an area which had been looked upon as unfavorable in view of erratic sand conditions in most of the small fields.

The discovery of two more Pettus sand fields in Duval County of the Laredo district has intensified wildcatting in this area. Both fields were found along the same trend as the Benavides field, discovered last year as the first Pettus field in the district. The trend extends southwest through the eastern half of the county.

Another development in the Laredo district expected to stimulate wildcatting was the opening of a new sand on the east side of the Old Mirando Valley district. The well was drilled by Burt Calvin on the Lopez lease, and has resulted in a revival of drilling activity.

The search for Frio production in the Rio Grande Valley district, including such counties as Cameron, Kleberg, Kennedy and Willacy, has been responsible for two wildcats being drilled below 10,000 feet during the first half of the year. Practically all acreage through these counties is blocked or checkerboarded by major or independent companies, and several deep wildcats are scheduled to be drilled during the year.

Wildcatting in the Corpus Christi area was fairly successful during the first six months and no let-up in this development is anticipated. Such counties as Aransas, San Patricio, Nueces, Calhoun and Victoria contain several promising prospects to be drilled within the next several months.

While wildcatting along the Balcones Fault line failed to uncover any outstanding fields, operators continue to be encouraged as several exploratory tests on favorable looking prospects have shown evidence of production. One of the most promising areas extends northwest-southeast along a large anticline through Maverick and Dimmitt counties where two wildcats recently showed promise of Edwards lime production.

COASTAL LOUISIANA

One of the most attractive wildcatting campaigns to be started in Coastal Louisiana centers around the southeast portion of Lake Pontchartrain in Orleans Parish where W. T. Burton has made location for three wildcats. Two locations were made along the shore line, while the other test is out in the lake. The operator has had geophysical crews working in this area for several months and some interesting developments are expected before the end of the year.

Wildcatting in this district has shown a large increase over the same period of last year, and with so many new fields already discovered, no let-up in drilling is expected.

NORTH LOUISIANA, ARKANSAS

The tri-state area is due for a continuation of the deep exploration which has resulted in the discoveries of most of its major pools in the past two years. This deeper drilling, aimed at the Lower Glen Rose, the Cotton Valley formation and the Big lime or Smackover lime has been particularly successful in older shallow fields.

Wildcatting of this nature is expected to spread to several of the prospective areas. A test is already begun in the Carterville field of Webster Parish, and interest in the Pine Island section of Caddo, Caddo Parish, may result in a deep test there during the second half of 1938.

Aside from deeper drilling on proven shallow structures, rank wildcatting will probably continue in the Big lime trend of South Arkansas, where two fields were opened this year, and where most of the state activity is now centered. This area now embraces Union and Columbia counties and part of Lafayette County. The current drilling of a wildcat north of the Buckner field, across the line in Nevada County, may extend the play well into that section in the remainder of the year.

Field outpost drilling is expected to be strongest at Cotton Valley where the recent discovery of oil in a low outpost Bodcaw well shows indications of a possible oil field encircling the extensive gas-distillate cap which is yet only

partially developed. Additional outpost drilling will be carried on in the Magnolia-Village area of Columbia County, South Arkansas, with the possibility that the two single-well fields may prove to be continuous.

Wildcatting on the southwest portion of the Rodessa fault system, beyond Jefferson-Lodi, is also expected during the year. This may extend through Marion County into Harrison County, depending on the success of current wildcat operations.

WEST TEXAS

As the half-year period closes there are approximately 80 wildcat tests drilling or rigging up in West Texas. Most of these are in the North Basin trend, while eight have the Ordovician as their objective. Continued exploratory work may be expected in an effort to establish the productive limits of such newer fields as Bennett, Wasson, Harper, Foster, Slaughter, Seminole, Duggan and others.

Although it is hard to predict whether the present rate of exploration will continue over the next six months, it is safe to say there remains much unexplored acreage in possible producing areas of West Texas. In this vast territory, comprising about 38,500,000 acres, only about 1,500 dry holes have been drilled on wildcat locations, or about one to every 26,000 acres.

WEST CENTRAL TEXAS

In West Central Texas, always considered the stronghold for the independent wildcatter, continued exploration in the multiple zones of the Pennsylvanian will continue. Deeper drilling is considered for all wildcats in that district now, stimulated by the Strawn production at K.M.A. and the rather recent Ordovician discoveries in the region.

NORTH TEXAS

It is probable the North Texas operators will not cease their wildcatting over the next six months, as they continue search for new Strawn or Ordovician fields throughout the entire district. Rather recent discovery of deep Strawn production in Cooke County throws all the northernmost counties along Red River open to deep exploration. The new K.M.A. and Panther pools provide the stimulation for additional wildcatting in the district, which was practically at a standstill 1½ years ago.

PANHANDLE

While the present 10 wildcats in the Panhandle district will continue to completion, and some few are expected to begin, the principal wildcat interest in the territory will be centered for the next six months on Sinclair Prairie Oil Co. and others 8,000-foot Ellenburger test to be drilled soon on the W. H. Bush tract, 14 miles south of Amarillo in Potter County. This location is on the government's helium reservation where Sinclair holds the oil rights and the government the gas rights.

EAST TEXAS

East Texas wildcatting has been on the decrease for the past year, largely because of the consistently unfavorable results in both Woodbine and Trinity tests. The Lower Marine section of the Trinity is still an unknown quantity in East Texas, but offers a possibility which future deep holes will not ignore. As the half-year closes, only one deep test is drilling to that objective in the district.

Scattered wildcatting will continue to the Woodbine formation at points along the Balcones Fault trend, or at possible points on the east side of the basin.

MICHIGAN

Never before in the history of Michigan oil explorations have wildcat operations been as numerous or as widely scattered as at the midway point in 1938. Though most of the wildcatting has been in a northwesterly direction from the established fields in Isabella, Midland and Gladwin counties, exploratory ventures are in progress in almost every corner of the lower peninsula, from Monroe County in the southeast corner to Missaukee and Wexford counties in the northwestern sector; from Ottawa and Kalamazoo counties in the southwest corner to the AuGres territory in the northeast, along the Lake Huron shore—and at dozens of points inside this big rectangle.

Wildcat prospecting is in progress, for example, in a dozen places in Michigan's "thumb" district. Tests are going down in Roscommon and Crawford counties, north and northwest of the Gladwin fields. Others are in progress in southwestern Saginaw County, where operators still hope to pick up the southeasterly line of the once flush production of the Porter and Greendale areas of Midland County.

Among the most interesting wildcat operations have been those in Clare County. Gulf Refining Co., for example, has begun rather thorough testing of the possibilities of Grant Township, Clare County, but in three wildcat attempts has failed to get an oil well; instead it got three substantial gassers, one of them rated at 21,000,000 feet. These tests are along the southern edge of Clare County, and it remained for a syndicate of Clare citizens—the S. J. Higelmire Trust—to tap Clare County's first oil production with a wildcat in Freeman Township, approximately 27 miles north of the Sherman-Isabella field, about 32 miles west of the prolific Buckeye-Gladwin district.

CALIFORNIA

For the first time in several years it appears almost certain that wildcat exploration will be undertaken in the three principal oil producing basins of California instead of being concentrated almost exclusively in the San Joaquin Valley. This is due to successful exploration work in Los Angeles Basin which has resulted in the discovery of a new productive area in the Lomita district where D. & B. Oil Co. completed a commercial producer about 1 mile south of the Torrance field as well as deep zone discoveries in the Montebello, Rosecrans and Torrance fields. In the south it appears almost a certainty Shell Oil Co. will undertake additional work in the Anaheim area of Orange County and leasing activities indicate additional drilling will be started before the close of the year in the area south and west of the Rosecrans field. No drilling in anticipated in the Rancho Sausal area between the Playa Del Rey and El Segundo fields within a year at least as six major companies purchased this acreage in fee and will no doubt allow the area to remain untested. There is a possibility something may develop to force drilling such as exploration work on adjoining acreage but most of the surrounding acreage has been taken on a three-year rental basis. Texas Co. has secured several hundred acres in the Ocean Park-Santa Monica region during the past several months and may undertake development work before the close of 1938.

The successful exploration work done by Barnsdall Oil Co. in the Newhall region bordering on Ventura and Los Angeles counties has stimulated interest in the coastal region again and will undoubtedly result in additional exploratory work within another several months. Large leases are held north and west of Barnsdall's Newhall field and some of these are expected to be tested this year. Texas Co. is working on a wildcat in the vicinity of King City further up the coast and if production is secured it will throw the entire area open for development. The edge has been taken off Santa Barbara County by the difficulties being experienced in disposing of current production of Santa Maria Valley field and thus wildcat drilling will be somewhat less than expected. Ventura County should, however, receive careful attention from prospectors and a number of important wildcats will be drilled in the Santa Clara Valley region.

San Joaquin Basin, due to its large areal extent and vast amount of untested acreage, will obviously receive the most careful attention of prospectors. The first new area to be tested will be the large block of leases recently acquired by Richfield Oil Corp. between the Elk Hills and Ten Section fields. This tract was seismographed after being tied up and the survey proved favorable. No move has yet been made by prospectors to drill exploratory wells northwest of Rio Bravo and Canal but some move along this line may be undertaken before another year rolls around. This acreage is all tied up but up to the present operators have centered their attention in the southern end of the valley where several primary fields have been discovered during the past two years. Completion of Petroleum Securities Co. wildcat in the Guijarral Hills area has stimulated interest in the potential possibilities of this section and this successful completion will lead to additional drilling. It appears almost certain at least two wells will be drilled between the discovery and the northern end of the Kettleman North dome field. Operators interested in the Cantua district of Fresno County have been endeavoring to interest other operators to proceed with additional exploration work while the acreage is tied up because this simplifies conditions but no definite decision has yet been reached. There is a good possibility additional seismograph work will be undertaken and another well drilled during the next six months. Western Gulf which pioneered this area has apparently decided to do no further work except in conjunction with some other operator in order to minimize further exploration work.

PIPE LINES

(Continued from Page 114)

Oklahoma Pipe Line Co. laid about 2½ miles of 8-inch line to fill a gap in a loop in one of the Carter County lines north of Ardmore, Okla., in the early spring.

Royalite Oil Co., Imperial Oil Co. subsidiary in Canada, laid about 45 miles of 6-inch loop in the existing system between the Turner Valley field and Calgary. This was done to increase the capacity of this system from 14,000 to 24,000 bbls. per day to accommodate the increased production of the Turner Valley field.

A 12,000-bbl. per day capacity line was laid by the Continental Oil Co. when its 6-inch line from Ville Platte to Tepetate, in Evangeline Parish, Louisiana, was completed early in the spring. This links the Ville Platte field with the deepwater terminal at Lake Charles, La.

Derby Oil Co. started construction of 20 miles of 4-inch pipe line from the Robbins pool, Sedgwick County, Kansas, to the refinery in Wichita. The line provides outlet for the oil from more than 50 wells in the Wellington pool.

One of the major pipe line projects of the first half of 1938 was the 287-mile oil line between the Barco concession of the South American Gulf Oil Corp. of western Venezuela to the seaport of Covenes, Colombia, on the Pacific Ocean. This line is 12 inches in diameter and electric welded. The work is carried on under a general contract let to Lindgren & Swinnerton of San Francisco, Calif. About 200 picked welders and construction men were sent from Houston, Tex., to the right of way. In addition, about 800 natives of Colombia will work on the job.

Tests in Taber Field

With one producing well shipping around 100 bbls. a day, Plains Petroleum Corp. is drilling two additional tests in the Taber field, southern Alberta. South of Lethbridge, Imperial Oil, Ltd., is near the lime with its No. 1 Lethbridge Southern well.

Exports of Products Best Since 1931; Crude Oil Shipments at New High

By H. STANLEY NORMAN

NEW YORK, July 26.—Exports of crude oil from the United States broke all existing records in the first half of 1938. Data covering the first five months show United States crude oil exports to have totaled 32,753,000 bbls. in 151 days, an all-time high, while shipments of refined products advanced substantially over 1937 reaching the highest level attained since 1931.

American producers and refiners exported an average of 527,536 bbls. of crude oil and refined products each of the first 151 days of 1938, an increase of about 28 per cent over shipments for the first five months last year. The gain in crude oil exports alone was about 32 per cent.

At the same time petroleum imports, including receipts under bond and those for domestic use, declined 992,000 bbls. in the first five months this year or from 21,874,000 bbls. in 1937 to 20,882,000 bbls in 1938. For domestic consumption alone, 1938 imports of 11,913,000 bbls. declined 688,000 bbls. from the total of 12,601,000 bbls. falling in this same classification in 1937.

Total exports of crude and refined products during the first five months this year of 79,658,000 bbls. exceeded imports of 20,882,000 bbls. by 58,776,000 bbls. showing shipments abroad to be nearly four times greater than receipts for the period.

Not only did total exports set a recent record but shipments of 32,753,000 bbls. of crude abroad during the first five months of 1938 have never been exceeded in the history of the industry. Exportation of 19,633,000 bbls. of motor fuel from January to May this year has not been equalled since 1931 when 20,519,000 bbls. of gasoline were shipped to foreign customers. It is interesting to note that 57 per cent of the 1938 imports of crude and refined products were for domestic consumption and 43 per cent came in under bond for bunkering, transshipment and for finishing and reshipment. This same ratio of imports under bond and for domestic use prevailed in 1937.

There was an increase of 17,542,000 bbls., or about 28 per cent, in the 1938 exports totaling 79,658,000 bbls. over the same period in 1937 when shipments of crude and refined products aggregated 62,116,000 bbls.

Crude oil shipments accounted for the bulk of the gain in exports. Bureau of Foreign and Domestic Commerce and Bureau of Mines reports show crude oil exports in the first five months of 1938 totaled 32,753,000 bbls., exceeding shipments for a similar period in 1937 by 10,489,000 bbls., a gain of 32 per cent.

Refined products exported from January to May totaled 46,905,000 bbls., an increase of 7,053,000 bbls. over 1937 or about 15 per cent. A majority of this gain in exportation of finished products was in motor fuel shipments which increased from 14,164,000 bbls. in five months of 1937 to 19,633,000 bbls. this year. Less impressive gains were registered in exports of kerosene which rose from 3,359,000 to 3,656,000 bbls.; in gas oil and distillate fuel which increased from 10,905,000 to 12,602,000 bbls. and in residual fuel which advanced from 6,179,000 to 6,328,000 bbls.

Exports of lubricating oil dipped from 4,473,000 bbls. in the first five months of 1937 to 4,036,000 bbls. this year. Foreign trade in wax was curtailed sharply with exports dropping from 108,793,000 pounds in 1937 to 68,458,000 pounds this year. At the same time our imports of wax increased from 11,031,000 pounds in 1937 to 15,536,000 pounds this year, 203,000 pounds of which were brought in under bond.

Despite a gain of 15 per cent in imports of crude oil this year, or from 9,042,000 to 10,455,000 bbls. by volume, the diminished receipts of refined products more than compensated for the bulge. Imports of refined products totaling 10,427,000 bbls. in the first five months of this year represented a decline of 2,405,000 bbls. from the figure of 12,832,000 bbls. in 1937.

Residual fuel oil imports this year totaling 8,593,000 bbls. constituted about 85 per cent of the refined products received. Sixty-six per cent of the residual fuel oil receipts came in under bond and did not figure in domestic trade. Only 1,739,000 bbls. of residual fuel oil imports paid duty and entered domestic trade channels.

Our imports of light refined products were again practically nil, only 95,000 bbls. of unfinished gasoline falling in this classification. From the factual data presented in the preceding paragraphs and in the accompanying tables it is evident America's petroleum exports have played an increasingly important role in general economics of the industry so far this year. Crude oil exports alone totaling 32,753,000 bbls., averaged 216,907 bbls. daily, or roughly half the output from the East Texas field. Export statistics show Japan was America's largest individual customer for crude oil during the first five months with France, the United Kingdom, Italy and Germany figuring prominently in the trade.

(Continued on Page 121)

EXPORTS FOR FIRST FIVE MONTHS OF 1938

(In 1,000 bbls. except wax in 1,000 lbs.)

Year—	Crude oil	Refined products	Gasoline	Kerosene	Gas oil, distillate	Residual fuel oil	Lubricating oils	Wax
1938	32,753	46,905	19,633	3,656	12,602	6,328	4,036	68,458
1937	22,264	39,852	14,164	3,359	10,905	6,179	4,473	108,793
1936	17,829	32,368	11,089	2,360	7,957	6,342	3,621	79,405

Data derived from Bureau of Mines and Bureau of Foreign and Domestic Commerce.

TABLE 1—IMPORTS FOR FIRST FIVE MONTHS OF 1938

(In 1,000 bbls. except wax in 1,000 lbs.)

Year—	Crude oil		Refinery products				Gas oil, distillate		Residual fuel		Wax	
	In bond	Domestic	In bond	Domestic	Gasoline	Kerosene	In bond	Domestic	In bond	Domestic	In bond	Domestic
1938	1,223	9,232	7,746	2,681	*95	....	....	....	6,854	1,739	203	15,333
1937	608	8,434	8,665	4,167	....	....	480	....	7,511	2,453	....	11,031
1936	1,223	11,630	6,616	2,786	....	....	....	....	6,426	480	....	6,866

*Unfinished. Data derived from Bureau of Mines and Bureau of Foreign and Domestic Commerce.

TABLE 2—IMPORTS OF CRUDE OIL AND REFINERY PRODUCTS FOR FIRST HALF OF 1938 AT PRINCIPAL PORTS

(Data from A.P.I. Reports)

	Baltimore (bbls.)	Boston (bbls.)	New York (bbls.)	Philadelphia (bbls.)	Others (bbls.)	Total (bbls.)	Gulf Coast (bbls.)	Grand total (bbls.)	Crude oil (bbls.)	Fuel oil (bbls.)	Gas oil (bbls.)	Other pet. oils (bbls.)
January	313,000	78,000	2,086,000	1,076,000	201,000	3,754,000	382,000	4,136,000	2,162,000	1,742,000	.....	232,000
February	480,000	152,000	2,201,000	561,000	111,000	3,505,000	94,000	3,599,000	1,751,000	1,754,000	.....	94,000
March	505,000	130,000	2,690,000	803,000	242,000	4,370,000	240,000	4,610,000	2,587,000	1,871,000	.....	152,000
April	353,000	146,000	2,565,000	733,000	104,000	3,901,000	308,000	4,209,000	1,835,000	2,136,000	.....	238,000
May	602,000	169,000	1,771,000	954,000	398,000	3,894,000	317,000	4,211,000	2,126,000	1,838,000	.....	247,000
June	415,000	194,000	2,206,000	1,067,000	189,000	4,071,000	220,000	4,291,000	2,298,000	1,903,000	.....	90,000
First half of 1938	2,668,000	869,000	13,519,000	5,194,000	1,245,000	23,495,000	1,561,000	25,056,000	12,759,000	11,244,000	.....	1,053,000
First half of 1937	2,210,000	1,536,000	14,577,000	4,922,000	1,651,000	24,896,000	2,098,000	26,944,000	11,572,000	13,710,000	470,000	1,062,000
First half of 1936	2,679,000	2,018,000	13,344,000	4,771,000	1,075,000	23,527,000	2,424,000	26,311,000	15,645,000	10,251,000	155,000	260,000

TABLE 3—FIRST HALF 1938 RECEIPTS OF CALIFORNIA OILS AT ATLANTIC PORTS

(Data from A.P.I. Reports)

	Baltimore (bbls.)	Boston (bbls.)	New York (bbls.)	Philadelphia (bbls.)	Others (bbls.)	Total (bbls.)	Gulf Coast (bbls.)	Grand total (bbls.)	Gasoline (bbls.)	Kerosene (bbls.)	Fuel oil (bbls.)	Other pet. oils (bbls.)
January	65,000	.....	72,000	43,000	76,000	256,000	.....	256,000	.....	72,000	141,000	43,300
February	109,000	.....	153,000	.....	325,000	614,000	.....	614,000	290,000	61,000	179,000	84,000
March	.....	.....	.....	.....	124,000	124,000	.....	124,000	124,000	.....	.....	.....
April	132,000	.....	68,000	117,000	195,000	512,000	.....	512,000	240,000	72,000	.....	*200,000
May	30,000	.....	180,000	160,000	152,000	522,000	.....	522,000	313,000	64,000	.....	†145,000
June	162,000	.....	.....	117,000	308,000	587,000	.....	587,000	417,000	.....	.....	‡170,000
First half of 1938	498,000	.....	473,000	437,000	1,207,000	2,615,000	.....	2,615,000	1,384,000	269,000	320,000	642,000
First half of 1937	220,000	.....	393,000	918,000	968,000	2,499,000	.....	2,499,000	1,632,000	198,000	503,000	166,000
First half of 1936	198,000	154,000	1,107,000	1,456,000	1,216,000	4,131,000	.....	4,131,000	3,101,000	595,000	402,000	33,000

*Includes 68,000 bbls. of crude received in New York. †Includes 66,000 bbls. of crude received in New York. ‡Includes 62,000 bbls. of crude received in Baltimore.

Many in Oil and Gas Industry Answer to Last Call in First Half of Year

The oil and gas industry was bereft of many valuable men during the first six months of 1938. Following is a list of those whose passing was recorded in The Oil and Gas Journal during that period.

A

Alberts, L. H., 21, pumper, Graham, Tex., February.

Alexander, Howard T., 70, retired president, H. T. Alexander Oil Co., East Orange, N. J., February.

Arsenault, Miss Renee, Imperial Oil Co., Calgary, Canada, March.

B

Bailey, Roy B., 31, Phillips Petroleum Co., Odessa, Tex., June 24.

Baskin, Robert Young, 26, seismograph division, Shell Petroleum Corp., Cameron, La., February.

Bass, Charles M., 49, Sinclair Prairie Oil Co., Nowata, Okla., June.

Bates, A. A., 36, office manager, Amsco Refining Co., Corpus Christi, Tex., February 1.

Beatty, L. M., 89, pioneer drilling contractor, Bartlesville, Okla., March.

Bickell, Charles Henry, 69, assistant to president, Tide Water Associated Oil Co., Passaic, N. J., June.

Blackman, Carl R., 53, oil operator, Tulsa, Okla., June 14.

Bradley, George H., 73, pioneer oil man, Bolivar, N. Y., February 5.

Brereton, Arthur M., 46 comptroller, Pure Oil Co., Winnetka, Ill., June 16.

Brodie, James, 65, oil man, Nelson, British Columbia, April.

Burns, Bob, 38, former scout, Dallas, Tex., June.

Burns, Robert James, vice president, Grease Creek Petroleum, Ltd., Calgary, Canada, April.

Bushnell, Charles Elmer, 80, retired treasurer, Atlantic Refining Co., Philadelphia, Pa., May.

C

Campbell, Charles Edward, 69, Black, Sivalls & Bryson, Inc., Bartlesville, Okla., May 5.

Campbell, Gordon, 64, oil man, Kevin, Mont., May 31.

Cann, George H., 62, division manager, National Supply Co., San Joaquin Valley, California, January 28.

Christian, Ernest Godwin, 63, pioneer oil man, Liberty, Tex., March.

Clarke, G. C., owner, Western American Oil Co., Bartlesville, Okla., March 7.

Clarke, Robert Davis, 64, oil operator, Los Angeles, Calif., April.

Coates, Frank R., director, Cities Service Co., New York City, June 27.

Cochrane, John T., president, Coastal Petroleum Co., Mobile, Ala., January 12.

Collins, Frank, 67, vice president, National Supply Co., Toledo, Ohio, February 12.

Conradson, Dr. Pontus H., 86, petroleum chemist, Franklin, Pa., January 21.

Cook, Adam B., 70, driller, Pittsburgh, Pa., April.

Craig, Robert E. L., assistant district manager, Gulf Oil Corp., San Antonio, Tex., June.

Cremin, Eugene Francis, 61, oil man, Tulsa, Okla., February 18.

Cress, L. E., 50, oil operator, Wichita, Kans., April.

Crone, Edward M., 46, secretary, Texas Corp., Bronxville, N. Y., June 20.

Crosbie, John E., 75, pioneer oil operator, Tulsa, Okla., June 21.

Crosby, Allen Wynn, 59, Houston, Tex., January 7.

Crosby, George R., Sun Oil Co., Jacksonville, Fla., March.

Currie, Burt W., 59, oil producer, Knapp Creek, New York, March 7.

Curry, Frank J., 59, oil man, Tulsa, Okla., March 6.

D

Davies, Thomas D., assistant to vice president, National Tube Co., McKeesport, Pa., May 28.

Deverse, Clyde O., 50, district superintendent, I.T.I.O. Co., Oklahoma City, Okla., February 1.

Doolittle, C. H., Mansfield, La., January 12.

Dunigan, W. A., 51, former president, National Tank Seal Co., Tulsa, Okla., March 16.

Duston, Arthur W., 52, geologist, Tulsa, Okla., February 2.

E

Ebie, A. C., 74, retired vice president and general manager, Magnolia Petroleum Co., Dallas, Tex., February 26.

Evans, Arthur G., 59, assistant treasurer, Gulf Refining Co., Port Arthur, Tex., February 9.

Exley, Lewis E., 67, producer, Kossuth, Pa., June 15.

F

Faine, A. E., 63, producer, Marietta, Ohio, March 4.

Findley, Al, former employe, Texas Pipe Line Co., Shreveport, La., February 17.

Fisher, Henry, 79, retired director, Standard Oil Co. of New York, New York City, May 17.

Fisher, Leslie A., 36, geologist, Sinclair Prairie Oil Co., Galveston, Tex., April 1.

Flynn, William B., 48, former oil executive, Baton Rouge, La., April.

Foley, George E., president, Murphy Oil Co., Whittier, Calif., June 20.

Freeman, W. D., 73, operator, Mexia, Tex., May 30.

Fuller, E. E., oil operator, Durant, Okla., March 2.

G

Gardner, Charles F., 53, lease man, W. C. McBride, Inc., Tulsa, Okla., March 26.

Gilman, R. L., 60, oil operator, Cisco, Tex., June.

Gleghorn, C. O., 51, Goodrich Rubber Co., Detroit, Mich., February 9.

Golden, John E., 73, retired president, Tide Water Pipe Line Co., Ltd., Bradford, Pa., February 4.

Golding, Dudley, president, American Liberty Oil Co., Dallas, Tex., March 4.

Gray, C. F., 51, oil man, Nowata, Okla., January 6.

Greene, T. B., vice president, Buckeye Pipe Line Co., Lima, Ohio, February 12.

Greve, Edgar Eugene, retired chief engineer, Oil Well Supply Co., Dallas, Tex., March 6.

Guthrie, Millard G., 57, drilling contractor, Sapulpa, Okla., March 6.

H

Hamilton, James F., 40, rig builder, Wichita Falls, Tex., February.

Hannis, William L., 70, oil man, Tulsa, Okla., May 27.

Hanratty, Bernard J., 93, retired oil man, Tulsa, Okla., March 10.

Harris, Warren, 66, Harris Pump & Supply Co., Camden, S. D., February 14.

Haylett, Robert E., director, Union Oil Co. of California, Los Angeles, Calif., June 13.

Herring, Charles M., engineer, Iran, June.

Heyser, E. S., oil operator, Dallas, Tex., March.

Hollenback, Joe T., oil man, Oklahoma City, Okla., March 21.

I

Ice, L. F., 47, drilling contractor, Tulsa, Okla., March 24.

J

Jenkins, J. H., vice president, Tide Water Associated Oil Co., San Francisco, California, May.

Johnson, Alba B., Jr., 51, Atlantic Refining Co., Philadelphia, Pa., March.

Jondahl, Floyd N., 49, secretary, Producers Oil Co. of Kansas, Wichita, Kans., April.

Jones, W. R. (Tex.), 52, oil operator, Wichita, Kans., February 26.

Jordan, Daniel E., 85, retired, Sinclair Prairie Oil Co., Tulsa, Okla., February 27.

K

Keery, Abram, 70, producer, Custer City, Pa., March.

Kelley, Otis, 41, oil field worker, Oklahoma City, Okla., March 16.

Keys, John H., 38, oil man, Vernon, Tex., March.

Kinley, Floyd Tipton, 33, international oil fire fighter, Tulsa, Okla., March 12.

L

Lang, Otis R., 57, drilling contractor, Alberta, Canada, January.

Leebove, Isaiah, 42, general manager, Mammoth Producing & Refining Corp., Clare, Mich., May 14.

Leonard, John W., 70, pioneer operator, Washington, Pa., January 25.

Lobaugh, M. H., 70, operator, Eastland, Tex., February 11.

Lockhart, James H., 75, oil man, Pittsburgh, Pa., May 16.

Lohman, Zeke, 49, driller, Flora, Ill., January 18.

Longaker, L. C., 82, vice president, National Transit Co., Oil City, Pa., April 3.

Lorenze, John C., 96, oil man, Grand Valley, Pa., March.

Lott, Albert G., 51 superintendent, Hinderliter Tool Co., Tulsa, Okla., May 27.

Louis, Frank I., president, Highway Oil Refining Corp., Tulsa, Okla., March 3.

Mc

McCord, L. N., 30, geologist, Hattiesburg, Miss., February.

McDonald, John A., 63, retired pipe line foreman, Tulsa, Okla., March 20.

McElroy, Robert H., 61, vice president, Standard Oil Co. (Indiana), Evanston, Ill., June 25.

McGee, C. B., 70, retired driller, Wichita, Kans., May 23.

McKee, E. J., 55, Dallas, Tex., January.

McLaughlin, Richard, 85, former employe, National Transit Co., Bradford, Pa., March 7.

McLeod, E. H., 51, operator, Okotoks, Alberta, Canada, January.

McNair, Charles, 56, Imperial Oil, Ltd., Kingston, Jamaica, May.

M

Maire, Frank L., 68, producer, Lima, Ohio, May 15.

Mays, Eugene, 35, oil man, San Antonio, Tex., June 16.

Meals, Samuel J., 82, driller, Wichita Falls, Tex., February 9.

Megahan, D. B. (Don), operator, Robinson, Ill., February 2.

Mencacci, Frank, 32, Gulf Refining Co., Galveston, Tex., March.

Merchant, Ambrose, 57, oil man, Houston, Tex., June.

Merriam, Arch E., 55, operator, Wichita, Kans., February 1.

Moody, Joseph Francis, 55, Walter O'Bannon Co., Tulsa, Okla., February 22.

Moynihan, Eugene, 63, tankage superintendent, Stanolind Pipe Line Co., Ranger, Tex., April.

Muir, John, 52, geologist, Sydney, Australia, January.

Mullendore, E. C., operator, Cleveland, Okla., January 18.

Munsey, C. A., district gauger, Stanolind Pipe Line Co., Skiatook, Okla., June 16.

Murdock, John, 36, rig foreman, Oklahoma City, Okla., March.

Murphy, William A., 60, oil man, Alberta, Canada, June.

N

Neville, Paul, rig builder, Beaumont, Tex., March.

P

Perkins, J. Clarence, 53, field manager, Perkins Cementing, Inc., Norwalk, Calif., June.

Perryman, J. T., 82, oil man, Oklahoma City, Okla., February 17.

Perryman, Charles A., American Chain & Cable Co., Houston, Tex., April 12.

Phillips, Hilton A., 38, president, Hilton Phillips, Inc., Oklahoma City, Okla., February.

Pickerel, J. W., oil field worker, Burkburnett, Tex., February.

Pierson, J. B. (Buzz). National Supply Co., Columbus, Ohio, February.

Pigue, W. W., Sr., Gulf Publishing Co., Martin, Tenn., February 14.

Polk, M. L., 35, production superintendent, Windsow Oil Co., Houston, Tex., April.

Powers, Willis H., 78, retired oil producer, Bradford, Pa., April 15.

Priestley, George C., 76, retired operator, Titusville, Pa., April 5.

R

Ramey, James F., 45, oil field worker, Rodessa, La., March 5.

Rawson, William, 77, driller, Santa Anna, Calif., February.

Reader, Earl W., 50, oil man, Wyoming, May.

Rhodes, William L., 38, producer, Coleville, Pa., April 4.

Richmond, S. B., refinery worker, Overton, Tex., February.

Riley, John Richard, 56, gauger, Sinclair Pipe Line Co., Jenks, Okla., April 17.

Robertson, William Eddie, 54, Standard-Vacuum Oil Co., Shanghai, China, April.

S

Schneider, Frank, 67, division superintendent, Tide Water Associated Oil Co., Midland, Tex., February.

Shaffer, M. R., 45, Bartlesville, Okla., January 11.

Shaffer, O. R., 63, oil scout, Sapulpa, Okla., February 21.

Shinn, William H., 67, oil man, Bartlesville, Okla., March 26.

Sivalls, James A., 71, Black, Sivalls & Bryson, Inc., Bartlesville, Okla., February 8.

Sloan, James Wallace, 68, president, International Supply Co., Tulsa, Okla., February 18.

Smith, L. A., superintendent, Norway-Clinton Oil Co., Bullion, Pa., February.

Smith, M. H., 60, retired drilling contractor, Shreveport, La., June 1.

Smith, Elbert, 27, refinery engineer, Guthrie, Okla., June.

Smith, Harvey A., 32, oil field worker, Tulsa, Okla., March.

Snyder, David Hiram, 62, oil man, Bartlesville, Okla., March 17.

Southern, Wheaton I., 51, producer, Tulsa, Okla., February 23.

Stahl, Edwin S., 51, oil operator, Oklahoma City, Okla., June 12.

Steele, Gayle A., 54, president, Sinclair-Pierce Oil Co., Mexico, February.

Steinberger, George, 57, producer, Independence, Kans., April.

Stoner, Robert G., Standard Oil Co., Dutch East Indies, April.

Swaney, James, 24, manager, Kerotest Manufacturing Co., Odessa branch, Odessa, Tex., March 17.

T

Terrell, Barney, 39, scout, Stanolind Crude Oil Purchasing Co., Oklahoma City, Okla., February 7.

Thomas, W. L., 57, oil man, Huntington Beach, Calif., April 4.

Thompson, Beverly Tucker, 72, St. Petersburg, Fla., January 19.

Trottnow, Alfred H., 52, treasurer, Braden Winch Co., Tulsa, Okla., April 3.

Troutman, George, drilling contractor, Jacksonville, Fla., April 2.

Turner, J. Paul, 53, Arkansas Fuel Oil Co. Shreveport, La., April 4.

V

Van Schaick, Arthur P., vice president, American Chain & Cable Co., Southport, Conn., June.

W

Wall, C. Frederick, president, Wall Rope Works, New York City, May 27.

Weaver, Nathan M., 79, driller, Eldorado, Kans., March.

Webster, Clay Johnson, 59, San Antonio, Tex., January 2.

Welker, William S., 73, oil operator, Rouseville, Pa., March.

West, R. M., geologist, Hattiesburg, Miss., February 21.

Westcott, James Harry, 65, oil author, Larchmont, N. Y., May.

Whitehill, John P., 88, oil operator, Chelsea, Okla., January 27.

Whitney, George A., 75, retired staff correspondent, The Oil and Gas Journal, Toledo, Ohio, March 19.

Williams, D. C., president, Northern Oklahoma Gas Co., Ponca City, Okla., March 8.

Williams, Reed Stephen, 48, South Penn Oil Co., Parkersburg, W. Va., April 15.

Winder, Boyd, 34, oil field worker, Saint Jo, Tex., February.

Winslow, Arthur, 77, president, Boston Petroleum Co., Boston, Mass., March 28.

Wise, Clarence R., 43, secretary manufacturing committee, Standard Oil Co., Summitt, N. J., January 21.

Wolfe, Frank E., 67, oil man, Tulsa, Okla., June 15.

Wright, Jesse C., 50, president, Wright Oil Tool Co., Bakersfield, Calif., February 2.

Wright, Roy R., 33, petroleum engineer, Fort Worth, Tex., February 4.

Wright, William, 70, retired vice president, International Supply Co., Tulsa, Okla., February 18.

Wylie, Newton, 45, president, Capital Interests, Ltd., New York City, February.

X

Xavier, Norman, 54, assistant general manager, Texas Co., Shanghai, China, May 19.

EXPORTS

(Continued from Page 117)

The influence of military activities abroad is unquestionably an outstanding factor in America's current petroleum export business and even the well-informed can not hazard a guess as to how long the demand will remain at present levels. There is some agreement, however, that the rate of exports from this country is in no apparent danger of collapse at least for the remainder of 1938. Thereafter, it is an open question of whether exports will remain at their present level or decline to what many consider a more normal rate.

On the side of those who minimize the influence of military activities on petroleum exports is the argument that Europe and other sections of the world are planning and building more highways, the use of motor cars is spreading most rapidly where the density of owners is lowest and that modern methods of power generation are being adopted in even remote regions which require petroleum as a prime mover or in complementary capacities.

Movement of California petroleum to Atlantic waters was featured the past six months by inclusion of three cargoes of crude delivered in April, May and June at New York and Baltimore. There was a small increase, amounting to less than 5 per cent, in the total movement of California petroleum to the Atlantic Coast during the past six months compared to the same period in 1937, but this traffic remained considerably below that prevailing in 1936. The three cargoes of crude and a gain in kerosene received from the Pacific Coast accounted for the slight overall increase. In fact, gasoline movement from California to the Atlantic declined from 1,632,000 bbls. in 1937 to 1,384,000 bbls. in the first six months of this year and fuel oil traffic was down from 503,000 bbls. to 320,000 bbls. in the comparable periods.

The item in Table 3 headed "other petroleum oils" containing the three cargoes of crude totaling 196,000 bbls. shows a rather marked increase in solvents made in California and delivered on the Atlantic.

Exclusive of the crude oil the receipts of other petroleum oils from California on the Atlantic Coast increased from 166,000 bbls. in the first six months of 1937 to 446,000 bbls. this year. New York and Baltimore ranked about even in the destinations of California oils moving to the Atlantic, but a majority of the oil shown under the column headed "others" was unloaded at Providence with one part cargo of kerosene unloaded at Albany, N. Y.

New York remains by a substantial margin the ranking United States port in receipts of imported petroleum largely due to the extensive bunkering business carried on with bonded fuel oil. The next largest port of entry for imported petroleum was Philadelphia which had an increase of more than 500,000 bbls. this year over the first half of 1937.

Receipts of imported oil at Boston declined approximately 40 per cent and there was a gain of about 450,000 bbls. at Baltimore. Total receipts of foreign oil from January through June, as shown in reports of the American Petroleum Institute in Table 2, however, declined from 26,944,000 bbls. in the first half of 1937 to 25,056,000 bbls. the first half of this year extending unchanged the indications from five months data contained in the Bureau of Mines summaries.

PERCO

COPPER SWEETENING

WHAT IS IT?

Perco's Copper Sweetening is a modern, thoroughly proven, and economical method of sweetening sour petroleum products.

WHAT PRODUCTS WILL IT SWEETEN?

It will sweeten products varying in gravity from liquefied gases to light heating oils.

HOW EXPENSIVE IS IT?

Perco units can be made large or small to fit any individual refinery or gasoline plant. Costs depend on size. The Perco technical staff can advise approximately what an installation will cost at your plant or refinery.

WHAT ARE ITS ADVANTAGES?

Briefly, it saves money, lots of it. Chemical costs are lower; but even more important is the fact that this improved sweetening method reduces cost through the elimination of degrading effects suffered under old-fashioned sweetening methods. In practically every installation, these savings have paid for the cost of the COPPER SWEETENING unit within a few months.

By analyzing samples of your sour product, the Perco technical staff can estimate very accurately how much you can save by using COPPER SWEETENING. Such an analysis is offered free of charge.

Write or send samples to

PERCO INCORPORATED

Bartlesville, Oklahoma

or to

THE L. S. GREGORY COMPANY, TULSA, OKLAHOMA

LICENSING REPRESENTATIVE

Semi-Annual Review

IMPORTANT POOLS FOUND IN ILLINOIS AND IN WESTERN KENTUCKY

By SPECIAL CORRESPONDENTS

Nine pools were added in Illinois in the first half of this year, at least one of which promises to become a field of first importance. During the six months' period the Centralia field, a discovery of 1937, was developed and extended into the city of Centralia, where a very active town lot campaign was carried on, which resulted in many good wells, averaging in initial production close to 300 bbls. per well and starting further operations in Marion County, which led to the discovery of the Tate pool in Township 1n-2e, which has thus far yielded the largest wells in the Benoist sand of any of the pools in the state producing from the Chester, or Upper Mississippian series.

ILLINOIS

Summary of Wells Completed First Half of 1938

County—	Comp.	Prod.	Dry	Gas
Clay	35	12,252	6	0
Clinton	193	32,887	16	0
Fayette	21	2,938	1	0
Jasper	2	0	2	0
Jefferson	21	3,122	7	0
Marion	89	17,133	11	0
Richland	107	51,767	24	0
Wabash	5	105	3	0
Wayne	11	1,795	7	0
Clark	4	5	2	1
Effingham	2	0	2	0
Hamilton	1	0	1	0
Montgomery	1	0	1	0
Bond	5	0	4	1
Coles	1	0	1	0
Jackson	1	0	1	0
Randolph	2	0	2	0
Franklin	1	0	1	0
Lawrence	3	76	1	0
Macon	1	0	1	0
Macoupin	3	0	1	2
Perry	2	0	2	0
St. Clair	4	540	0	0
Shelby	1	0	1	0
Washington	1	0	1	0
Cumberland	1	0	1	0
Warren	1	0	1	0
Christian	1	0	1	0
Edgar	1	0	1	0
Jasper	1	0	1	0
White	2	0	2	0
Total	524	122,620	106	4

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	35	6,399	7	0
February	44	17,274	11	0
March	66	16,663	18	0
April	99	22,908	20	2
May	111	25,245	10	1
June	169	34,131	40	1
Total	524	122,620	106	4

Among the numerous McClosky lime discoveries of this year the largest wells have been developed in the Olney pool.

The Centralia pool was opened in December of last year by Adams Oil & Gas Co. in its No. 1 Schmidt, in section 2-1n-1w, just west of the city of Centralia. It had Benoist sand at 1,347-84 feet and started at 90 bbls. per day. As the development worked its way southeasterly it took in the city of Centralia, and there the same company opened townsite production on the Hefter heirs' property in section 13-1n-1w, on the western side of the city, with a well that started at 342 bbls. per day at 1,350-70 feet. This started a rush of town-lot leasing and close drilling which threatened to make Centralia another Spindletop, until the city council passed an ordinance limiting wells to two to the block. At the close of June the Centralia field, in and out of the city, had 274 oil wells.

Another pool opened late in December, but which was one of the important developments of this year, was the Dix pool in Jefferson County, discovered by Carter Oil Co. on a large block. The first well was No. 1 Tate, in section 10-1s-1e, which had been drilled to 3,874 feet, but which was plugged back to a sand at 1,980-90 feet where it made a 58-bbl. well. Subsequent wells proved better than the first one. The Dix pool is being slowly developed by the Carter Oil Co. because of general overproduction. The Benoist sand is the principal pay in the Dix area. The pool contained 13 oil wells at the close of the half year.

Carter Oil Co. also opened the Beecher City pool late in November of 1937, but its main development has been in the present year. It had 16 completed oil wells at the close of June.

The Clay City area including Clay City, the townsite, South Clay City and Olson, had 115 wells on June 30; Cisne area, 7; Barnhill, 1; Dix, 13; Beecher City (Louden), 16; Olney, 5; Patoka, 96; Centralia, 274; Noble and South Noble, 137. This gives the new Centralia Basin area a total of 664 oil wells at the end of June.

Perhaps the most important discovery of the half year was that of the Texas Co. with its No. 1 Tate, in section 5-1n-2e, about 7 miles east of the city of Centralia. The discovery well, coming in at 732 bbls. per day, was the largest of the wells in the Chester series but after the close of the half year the second well, a west offset, started at 1,047 bbls. in 16 hours, flowing through 2-inch tubing. The Texas Co. owns 30,000 acres surrounding the two wells and it is the opinion of some well-informed oil men not connected with the Texas organization that the Texas has the most promising block of acreage in the Central Basin.

Not only was the discovery well productive in the Chester series but it had been drilled to the McClosky lime in the Lower Mississippian where it found good saturation. The company decided to test out the upper pay first, and plugged back to the Benoist, with the success noted.

The Texas Co.'s discovery has spurred operators in the Central Basin area, and there is no doubt that the pays in the Chester series will be the main objective of wildcatters during the remainder of the year. The Benoist sand was found richly saturated with crude in the Centralia field and as the sand is said to have many of the characteristics of the Burbank sand of Oklahoma it may be expected to be long-lived and to pay off very profitably. It is relatively shallow and is a fine type of "poor man's sand," the cost of drilling being within the range of many operators of moderate means. The greater part of the basin has been leased by big, well-financed companies, but Illinois has in the past 18 months been the mecca of many individual operators who had almost given up the idea of ever being able to cope with drilling costs which have year after year been rising as it became necessary to drill deep to find new reserves.

KENTUCKY

While Kentucky as a whole completed more wells, with larger production in the first half of 1938 than in the same period last year, only one new pool of importance was discovered, but that one, Birk City, is already a major operation potentially. It was opened on April 22 by the Hoosier Drilling Co. on the Blackwell farm, near the Green River and near the town of Birk City, which is across the river in Daviess County.

KENTUCKY

Summary of Wells Completed First Half of 1938

	Comp.	Prod.	Dry	Gas
Eastern Kentucky	143	1,421	16	45
Western Kentucky	266	8,566	115	24
First six months 1938	409	9,987	131	69
Same period last year	223	5,761	41	42
Difference	186	4,226	90	27

WESTERN KENTUCKY

Summary of Wells Completed First Half of 1938

County—	Comp.	Prod.	Dry	Gas
Breckinridge	14	5	8	5
Daviess	36	670	12	3
Grayson	4	0	3	1
Hancock	33	277	17	2
Henderson	27	5,723	6	2
McLean	39	1,004	17	1
Muhlenberg	4	3	3	0
Ohio	83	728	34	8
Union	1	0	1	0
Webster	6	8	2	2
Caldwell	1	0	1	0
Butler	13	110	9	0
Logan	1	0	1	0
Todd	1	0	1	0
Wayne	1	25	0	0
Wolfe	1	10	0	0
Elliott	1	3	0	0
First six months 1938	266	8,566	115	24

Completions by Months

	Comp.	Prod.	Dry	Gas
January	48	539	18	9
February	27	370	13	0
March	31	433	15	1
April	53	1,713	19	6
May	42	1,593	23	3
June	65	3,918	27	5
First six months 1938	266	8,566	115	24

EASTERN KENTUCKY

Summary of Wells Completed First Half of 1938

County—	Comp.	Prod.	Dry	Gas
Lawrence	2	3	0	1
Powell	16	235	3	0
Floyd	40	173	3	29
Lee	39	531	4	0
Martin	29	450	2	7
Magoffin	6	29	1	0
Knott	3	0	0	3
Johnson	5	0	2	3
Pike	1	0	0	1
Perry	1	0	0	1
Wolfe	1	0	1	0
First six months 1938	143	1,421	16	45

Completions by Months

	Comp.	Prod.	Dry	Gas
January	20	248	3	3
February	32	284	3	15
March	19	238	0	12
April	24	207	2	6
May	18	241	3	2
June	30	203	5	7
First six months 1938	143	1,421	16	45

The discovery well which got its production in the McClosky limestone at a depth of 1,872 feet, drilled in only 2 feet, and was good for 1,200 bbls. a day initially, although it was soon choked down because of inadequate storage facilities.

The new pool was miles from a pipe line but was

(Continued on Page 128)

POOL DISCOVERIES IN ILLINOIS, FIRST HALF OF YEAR

Pool and county—	Operator and farm:	S-T-R	Formation	Sand record	Initial production	Completion date
Flora, Clay	Kingwood Oil Co., No. 1 Fred Graham	13-3n- 6e	McClosky	2,971-75	500	June 22
Tate, Marion	Texas Co., No. 1 Tate	5-1n- 2e	Benoist	1,752-1,810	732	June 30
....., Richland	J. V. Wicklund, No. 1 McCauley B	7-2n- 9e	McClosky, Fredonia	2,963-81½	1,000	June 21
....., Jefferson	Nollem & Benoist, No. 1 Kelly	25-4s- 2e	McClosky	3,002-03	85	June 29
Barnhill, Wayne	Texas Co. No. 1 Silverman	19-3n- 8e	McClosky	3,276-84½	385	Feb. 2
Clay City, Clay	Vermilion Oil Co., No. 1 Duff	19-3n- 8e	McClosky	3,020-24½	138	June 5
Olney, Richland	Bur-Kan Oil Co. and Kingwood Oil Co., No. 1 Allen	27-4n-10e	McClosky	3,036-41	200	Feb. 16
....., Richland	American National Drilling Co., No. 1 Everson	23-3n- 9e	McClosky	3,068-73	†20	May 25
Olson, Clay	Olson Drilling Co., No. 1 Irwin	12-2n- 7e	McClosky	3,060-65	*149	Feb. 2

†Also 50 bbls. water. *Also 51 bbls. water.

Semi-Annual Review

OVERPRODUCTION AND LOWER PRICES RETARD OLD EASTERN FIELDS

By J. P. O'DONNELL

The 27 per cent reduction in drilling from the first half of 1937 epitomizes the story of operations in the Eastern fields during the first six months of 1938. Completions in the January-June period of this year totaled 2,068 against 2,845 in the corresponding period of last year, a reduction of 777. Several related factors accounted for the decline in drilling. Production exceeded demand in four of the first five months, stocks increased accordingly and prices, at the end of June, were at a five-year low.

The relation between production and runs to stills of Pennsylvania Grade crude oil in the first five months of this year is shown in the following tables extracted from Bureau of Mines reports (figures in thousands of barrels):

Month—	Production	Runs	Difference
January	2,394	2,414	—20
February	2,267	2,214	+53
March	2,555	2,315	+240
April	2,344	2,239	+105
May	2,386	2,228	+158

The effect of this overproduction on stocks of Pennsylvania Grade crude oil is shown in the National Petroleum Association's monthly report. Stocks, after declining 54,399 bbls. in January, increased 36,197 bbls. in February, 277,441 bbls. in March, 88,661 bbls. in April and 153,731 bbls. in May. On May 31, 1938, they totaled 5,345,007 bbls. against 4,316,771 bbls. on May 31, 1937, an increase of 1,028,236 bbls. or 23.8 per cent.

Crude Price Reduction

Excess production and increasing stocks were reflected in the prices for crude which were reduced twice, first on March 7 and again on June 13. The first cut, following successive reductions on September 1, October 12 and December 1 of 1937, amounted to 15 cents in Bradford, Allegany and Southeast Ohio and 17 cents in other areas while the second was a flat 25-cent cut affecting all fields. In addition, one Bradford field buyer began paying partly in cash and the balance in scrip late in May. Prices, on the average, were 63.3 cents per barrel lower in the first half of 1938 than in the first six months of 1937. Average prices for the first half of each of the past two years are shown in the following table:

	1938	1937
Bradford-Allegany	$2.079	$2.660
Oil City-Titusville	2.016	2.660
Southwest Pennsylvania	1.746	2.410
Eureka, West Virginia	1.686	2.332
Buckeye, Southeast Ohio	1.579	2.208

One of the results of the low crude oil prices was agitation for a state conservation law. At their annual meeting January 21, directors of the Central Pennsylvania Oil Producers Association voted 22 to 2 in favor of a state conservation law and appointed a committtee to draft a bill which will be submitted to the state legislature which convenes in January. A few days later the year-old Pennsylvania oil industry investigation was halted by an injunction and in June the probe was killed when the state Supreme Court upheld the injunction. Ending of the investigation met with widespread approval since the commission had given ample evidence in public statements that it was primarily a "fishing" expedition investigating for something to investigate. Early in the year the Bradford District Producers Association instituted an investigation which was short-lived.

Production Curtailed

Another result of overproduction and low prices was the institution of curtailment, the first in the Pennsylvania area since 1930. While a 10 per cent curtailment had been in effect in the Allegany, New York, field since September 1, 1937, it was not until April 1, 1938, that acceptances were reduced in the Bradford field. Four refinery buyers cut acceptances to 85 per cent on April 1 and to 75 per cent on May 1. The latter was made generally effective throughout the field on June 1 and is still in effect. Since contracts except small producers and are not completely effective in other instances, curtailment to date has been substantially less than the indicated 25 per cent.

EASTERN FIELDS

Completions by Districts

Field—	Comp.	Prod.	Dry	Gas	Prs.
Bradford	937	6,917	0	1	275
Allegany	349	226	0	0	126
N. Y.-Pa. gas	32	0	8	24	0
Middle district	117	130	3	2	38
Butler-Armstrong	31	81	7	7	...
S.W. Pennsylvania	82	90	22	42	...
Southeast Ohio	182	1,859	59	44	...
West Virginia	338	625	70	210	...
First half 1938	2,068	9,928	169	329	*439

Completions by Months

Month—	Comp.	Prod.	Dry	Gas	Prs.
January	369	784	42	75	93
February	368	3,102	17	64	89
March	365	4,110	27	61	85
April	336	477	23	38	80
May	290	491	20	43	51
June	340	964	40	48	41
First half 1938	2,068	9,928	169	329	439
First half 1937	2,845	5,037	174	394	664
Difference	—777	+4,891	—5	—65	—225

*Pressure wells.

The result is that the Pennsylvania oil industry finds itself at the close of the first half of 1938 in a decidedly unfavorable position with prospects for an improvement in price decidedly distant. Production was still running in excess of demand and storage was still on the increase. Despite the five successive price cuts already, there is little assurance that another and possibly others will not follow. Refinery runs which were curtailed in the latter part of the period probably will continue low with indications of even further curtailment, resulting from the fact that the normally heavy consuming season for bright stocks has passed without reducing the stocks of these oils. Lubricating oil inventories as a whole were considerably higher on June 30 than on January 1.

Music Mountain Development

With oil well drilling reduced, field developments were without major incident. Five wells with an average initial production of 1,000 bbls. per day were completed in the Music Mountain area in the Bradford field. A good gas well which was soon exhausted was also drilled in this area, opened last summer. Practically all this area is held by two large operators which have announced that operations have been shut down and production shut in at least temporarily. Drilling, which ran high in the Bradford field early in 1937 in anticipation of a heavy demand which failed to materialize, was curtailed greatly in the first part of 1938, dropping off more than 30 per cent.

Operations in other fields followed already defined trends. Southeastern Ohio continued to yield the best average producers with a half dozen wells starting off with an initial of 170 bbls. per day. In West Virginia drilling for natural gas continued to increase while drilling for oil declined. Of the 338 wells drilled in this state during the first six months of this year, 210 were gas wells, 58 oil wells and 70 were dry holes.

Considerable wildcatting featured the Oriskany sand exploration campaign of the natural gas companies, particularly in the northern fields. Wildcats opened two small areas, one in Willing Township, Allegany County, New York, and the other in Brookfield Township, Tioga County, Pennsylvania. Kanawha County, West Virginia, continued to lead in natural gas development with 62 completions, 59 of which were gas wells.

Two more rotary rigs were introduced into these fields during the first part of the year, one in Westmoreland County and the other in Allegheny County, Pennsylvania. Neither of these tests, both wildcats, had been completed by the end of June. However, the first rotary to operate in the Eastern fields completed two tests, both in Potter County, but neither found production.

CENTRAL AND SOUTHEASTERN OHIO

Summary of Wells Completed First Half of 1938

County—	Comp.	Prod.	Dry	Gas
Ashland	13	0	0	13
Ashtabula	4	0	1	3
Athens	29	54	10	16
Belmont	7	0	3	4
Columbiana	5	6	2	1
Coshocton	3	0	3	0
Cuyahoga	3	0	1	2
Fairfield	6	0	1	5
Gallia	1	0	0	1
Guernsey	26	0	10	16
Hocking	1	0	0	1
Holmes	3	0	2	1
Huron	7	1	1	5
Jackson	1	0	0	1
Jefferson	6	1	2	3
Knox	22	630	2	11
Lawrence	3	0	0	3
Licking	46	736	8	19
Loraln	17	0	7	10
Medina	10	92	6	0
Meigs	20	0	11	9
Monroe	23	118	7	9
Morgan	9	5	4	3
Muskingum	15	110	3	8
Noble	10	60	1	8
Perry	8	26	1	3
Richland	1	0	0	1
Ross	1	0	1	0
Stark	15	0	1	14
Summit	6	0	3	3
Tuscarawas	10	0	2	8
Vinton	3	0	2	8
Washington	55	183	14	16
Wayne	4	0	3	1
Total	393	2,022	110	201

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	63	413	13	35
February	64	231	15	41
March	58	285	18	31
April	54	191	14	27
May	70	272	23	32
June	84	630	27	35
Total	393	2,022	110	201
Same period 1937	501	2,034	181	226
Difference	108	12	71	25

LIMA FIELD

Summary of Wells Completed First Half of 1938

County—	Comp.	Prod.	Dry	Gas
Greene	1	2	0	0
Hancock	1	0	1	0
Putnam	4	82	0	0
Sandusky	1	0	0	1
Seneca	5	100	0	3
Wood	3	25	1	1
Wyandot	1	0	1	0
Total	16	209	3	5

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	2	20	0	1
February	3	60	0	1
March	3	45	0	0
April	2	0	0	2
May	4	0	3	1
June	2	84	0	0
Total	16	209	3	5
Same period 1937	41	249	11	16
Difference	25	40	8	5

SUMMARY

Completions in Ohio First Half of 1938

Field—	Comp.	Prod.	Dry	Gas
Central and southeastern	393	2,022	110	201
Lima	16	209	3	5
Total	409	2,231	113	206
Same period 1937	542	2,283	192	256
Difference	133	50	79	50

Semi-Annual Review

LARGE RESERVES OF OIL DISCOVERED BY CALIFORNIA DEEP TESTS

By L. P. STOCKMAN

A consistently increasing production of crude oil, an abnormal increase in stocks, large offshore shipments of crude and refined oil and a general weakening in refined oil prices characterized developments in California during the first six months of 1938.

New discoveries of importance were made at Wasco in Kern County and in the Guijarral Hills district of Fresno County, and a new well which may either be a discovery well in a new field, or an extension well in the Lomita section of the Torrance field, was completed in Los Angeles Basin late in June. The existence of Rio Bravo zone production in the Greeley field was definitely proven by completion of a highly productive deep well, and Ohio Oil Co. logged two new oil zones in the Buena Vista Lake field which heretofore has produced a dry gas exclusively.

With the exception of Santa Maria Valley, where a reduction of 25 cents per barrel reduced the posted price to 45 cents per barrel for 16-gravity crude oil on May 20, crude oil prices remained unchanged but fuel oil and diesel were each reduced 10 cents per barrel at all Pacific Coast points on May 10. Previously, late in December, 1937, fuel oil prices were reduced 10 cents per barrel at Los Angeles and San Francisco and 15 cents per barrel in the San Joaquin Valley due to increasing crude oil production and a severe decline in demand. No change was made in the official posted price of gasoline but the allowance of increased differentials to resellers and unrestricted under the canopy selling in the retail market and a general softening in the spot market resulted in a lower net back. The substantial increase in stocks of refined oil is quite obviously the result of an abnormally high production of crude oil in the face of a depressed market rendered acute by generally lower consumption incident to the existing business depression and a marked decrease in bunkering business resulting from the transfer and restricted operation of ocean-going vessels. Coincident with this generally unfavorable condition, drilling operations dropped well below last year and will probably continue at the restricted rate due to an arbitrary reduction of work in the Wilmington and Santa Maria Valley fields. Abnormally heavy offshore shipments to foreign ports, principally to Japan and the Orient, alleviated the situation to some extent but this movement bogged down in June due to difficulties experienced in securing Japanese letters of credit without which California marketers will not load. At the close of June, there were 14 Japanese and other foreign registered tankers in California ports awaiting the necessary letters of credit and several of these vessels had remained at anchorage for more than two weeks.

New Discoveries

A minimum of 100,000,000 bbls. of new production was found in California in the first half of 1938 as a result of discoveries at Wasco, Guijarral Hills and Lomita, together with the deep zone discovery at Greeley, the extension of the proved limits at Rio Bravo and the extension of the deep zones at Rosecrans and Montebello.

Development may prove that Wasco or Guijarral Hills alone will exceed this minimum estimate. Petroleum Securities Co. made the discovery in the Guijarral Hills section of Fresno County, between the Kettleman North dome field and the East Coalinga field, just three hours before the close of the first six months of 1938, as No. 2 Gatchell was swabbed in. On short flow tests it was variously estimated to be good for 5,000 to 10,000 bbls. per day from the Avenal zone of Eocene age at a depth of 6,893 feet. No. 2 Gatchell, finished with a 8⅝-inch water string landed at 6,090 feet and 250 feet of 7-inch liner including 117 feet of 100-mesh perforated landed on bottom, is located in section 18-20-16, about 1½ miles southeast of the eastern tip of the East Coalinga field, and 7½ miles northwest of the western end of the Kettleman North dome field. The discovery is owned 50 per cent by Petroleum Securities and 25 per cent each by Seaboard Oil Co. and Honolulu Oil Corp., and was drilled under the supervision of Petroleum Securities. It is the second wildcat drilled by that company in the Guijarral Hills area. Several other tests were abandoned by various operators in the past. The production test, which was preceded by a formation test, was a mere formality, as it was generally agreed on the basis of core samples recovered that a large producing well could be anticipated. Production is coming from an oil sand logged at 6,814-93 feet, although subsequent development may result in commercial production in an upper zone logged at 6,711-24 feet. A formation test of the upper zone proved inconclusive although the recovery, 190 feet of gas-cut mud and a few spots of oil, with the tester at 6,690-6,730 feet, showed some evidence of an accumulation. Most of the potentially productive acreage in the Guijarral Hills field is held in relatively large blocks by conservative operators, which will preclude intensive development but at the same time it will not take many of these large wells to exert a pronounced effect on state production.

Wasco Field

Continental Oil Co. discovered a new major oil and gas field in the Wasco district of Kern County in April when its No. 2-A Kern County Land in section 8-27-24, was brought in flowing 2,900 bbls. of clean 39.9-gravity oil and 720,000 feet of gas per day from 83 feet of formation between 13,092 feet and 13,175 feet, with bottom of the hole at 15,004 feet. This well, which for more than two months was the deepest producer in the world,

CALIFORNIA FIELD OPERATIONS BY MONTHS FOR FIRST HALF OF 1938

1938—	Wells completed— No.	Bbls. dly.	Dry
January	119	85,446	35
February	70	78,461	17
March	82	90,290	26
April	89	88,604	21
May	96	113,352	21
First half 1937	548	268,861	145
First half 1936	382	183,541	171
First half 1935	365	380,105	158

TOTAL FLUID STOCKS OF PETROLEUM HELD IN PACIFIC COAST TERRITORY

(Barrels)

1938—	Heavy crude and fuel	Diesel and gas oil	Refinable crude	Natural gasoline	Gasoline	Naphtha distillates	All other stocks	Total all stocks
January 1	*68,529,388	*8,648,990	*29,417,842	2,001,204	13,520,678	1,464,577	*4,457,568	128,040,247
January 31	71,758,162	8,865,191	29,393,330	2,121,425	14,443,190	1,333,075	4,769,380	132,683,753
February 28	74,428,663	9,103,824	31,104,054	2,390,076	15,134,960	1,587,174	4,778,883	138,527,134
March 31	76,907,466	9,241,322	31,556,951	2,549,761	15,452,752	1,666,410	4,994,964	142,369,626
April 30	79,873,516	9,361,306	31,376,515	2,689,376	14,729,793	1,663,567	5,275,209	144,969,282
May 31	81,652,079	9,297,687	31,529,797	2,913,534	13,895,109	1,628,985	5,617,159	146,534,350

*Revised.

CALIFORNIA PRODUCTION OF CRUDE OIL BY DISTRICTS, JANUARY TO JUNE, INCLUSIVE, 1938

	January	February	March	April	May	June	Ttl. 6 mos.
Northern fields—							
Belridge—North	483,012	423,447	469,447	475,300	380,174	361,834	2,593,214
Belridge—South	48,103	45,319	45,433	35,239	32,253	32,271	238,618
Canal	14,414	36,684	38,840	55,672	56,713	67,656	269,979
Canfield Ranch	715	3,473	4,963	4,154	3,911	2,854	20,070
Coalinga	461,627	312,146	354,136	393,880	310,741	305,184	2,137,714
Edison	113,413	103,828	120,983	106,114	89,632	84,210	618,180
Elk Hills	339,016	309,340	344,725	333,596	335,147	319,266	1,981,090
Fruitvale	298,806	260,672	278,083	277,788	286,886	260,664	1,662,899
Greeley	114,089	102,926	102,107	99,114	107,661	124,190	650,087
Kern River	457,947	412,124	439,265	400,435	395,741	365,114	2,470,626
Kettleman Middle dome	2,529	2,253	2,212	1,791	1,686	1,510	11,981
Kettleman North dome	2,521,918	2,251,647	2,550,181	2,428,724	2,218,542	2,029,565	14,000,577
Lost Hills	112,738	103,476	120,161	114,898	113,343	107,301	671,917
McKittrick	131,816	120,889	116,760	114,094	102,286	90,930	676,775
Midway-Sunset	2,340,266	2,083,034	2,192,580	1,978,044	1,962,987	1,771,226	12,328,137
Mountain View	433,010	378,323	390,840	366,317	374,635	349,618	2,292,743
Mount Poso	631,900	572,964	613,463	582,585	596,426	514,077	3,511,415
Rio Bravo	80,037	46,827	31,066	93,703	100,740	129,567	481,940
Round Mountain	564,220	485,524	529,906	501,934	487,867	434,386	3,003,837
Ten Section	120,492	128,178	162,337	184,635	184,397	198,294	978,333
Wasco	.....	.....	.....	11,674	20,638	11,730	44,042
Wheeler Ridge	9,711	8,757	9,564	9,407	9,559	9,203	56,201
Coastal fields—							
Capitan	95,932	84,626	96,594	92,049	88,573	85,585	543,359
Elwood	237,578	215,509	222,522	198,341	209,475	200,006	1,283,431
Rincon	98,879	100,896	116,888	114,814	138,586	121,286	691,349
San Miguelito	126,013	116,401	93,231	88,963	85,819	75,448	585,875
Santa Barbara	16,207	14,065	15,621	13,246	14,059	12,663	85,861
Santa Maria	491,347	437,036	537,220	534,164	433,920	464,742	2,898,429
Summerland	992	911	990	872	1,078	1,050	5,893
Ventura Avenue	1,126,450	1,035,687	1,145,178	1,113,419	1,122,947	1,062,964	6,606,645
Ventura-Newhall	163,576	155,020	144,365	155,094	154,479	145,116	917,650
Watsonville	1,860	1,400	1,550	1,200	1,240	1,200	8,450
Southern fields—							
Brea Olinda	190,681	175,533	188,531	177,711	177,387	170,744	1,080,587
Coyote—East	125,649	111,725	117,759	106,816	110,120	104,903	676,972
Coyote—West	293,415	226,672	260,951	209,935	275,690	262,306	1,588,978
Dominguez	935,937	821,012	894,549	802,133	840,169	800,648	5,094,448
El Segundo	602,955	467,914	495,649	432,553	341,815	292,439	2,633,325
Huntington Beach	1,069,843	973,248	1,061,246	1,025,814	1,027,767	971,225	6,129,143
Inglewood	497,434	448,461	500,535	477,744	460,043	442,084	2,826,301
Lawndale	3,010	2,520	2,140	2,130	2,868	2,379	15,056
Long Beach	1,768,254	1,611,387	1,762,249	1,745,518	1,800,062	1,756,288	10,443,758
Los Angeles-Salt Lake	17,836	15,295	17,355	16,612	16,245	17,523	100,866
Montebello	254,983	238,862	251,466	256,536	330,958	331,096	1,663,901
Playa Del Rey	226,645	200,813	208,016	202,888	208,055	189,676	1,236,093
Potrero	11,804	11,105	9,113	12,478	14,037	25,567	84,104
Richfield	302,891	278,368	294,105	280,227	282,293	275,941	1,723,825
Rosecrans	172,279	178,139	184,700	207,144	211,119	240,980	1,194,367
Santa Fe Springs	1,360,635	1,180,333	1,308,579	1,118,957	1,123,630	1,012,260	6,880,694
Seal Beach	295,803	274,245	307,473	284,270	273,218	267,180	1,692,197
Torrance	336,824	324,350	346,174	288,198	304,116	425,388	1,787,050
Whittier	77,779	25,808	27,635	28,545	28,799	28,151	186,517
Wilmington	2,072,963	2,832,563	3,121,557	3,030,153	3,036,400	2,704,388	16,677,903
Total production	22,008,235	20,697,735	22,441,293	21,647,430	21,346,850	20,131,788	128,303,431
Daily average	709,943	735,991	723,913	721,581	688,611	671,726	708,306

has an oil sand of undetermined potentiality in the bottom of the hole and members of the company's geological department are of the opinion that the zone beneath that now producing will show a larger production. The hole was cleaned out to 13,998 feet and consequently the oil zone at 14,049-315 feet is not open to production. At the close of June, Continental Oil Co. had a second well drilling on the Kern County Land Co. lease headed down to the pay and Standard Oil Co. was rotating ahead in two offsets on the Mushrush lease in section 7-27-24, and Kern County Land Co. lease in section 17-27-24. Unusually heavy equipment is being used and exceptionally fast footage has been recorded in all three wells.

PRODUCTION OF CRUDE BY MONTHS—CALIFORNIA OIL DISTRICTS

(In barrels of 42 U. S. gallons)

	1938		1937	
	Total bbls.	Dly. av.	Total bbls.	Dly. av.
January	22,008,235	709,943	18,031,650	581,666
February	20,607,735	735,991	16,515,433	589,837
March	22,441,293	723,913	18,427,798	594,445
April	21,647,430	721,581	18,816,050	627,201
May	21,346,950	688,611	20,365,478	656,951
June	20,151,788	671,726	19,913,888	663,796
Total	128,203,431	708,306	112,070,297	619,173

Deep Zone at Greeley

Standard Oil Co. found the equivalent of the Rio Bravo sand highly productive in the Greeley field of Kern County late in the period when No. 11-2 Kern County Land in section 20-29-26 was completed flowing at the rate of 15,096 bbls. of clean 36.7-gravity oil and 15,000,000 feet of gas per day from 11,520 feet. This deep zone discovery well cored top of the Rio Bravo zone at 11,417 feet and it was completed flowing through a 1-inch and a 1⅛-inch casing bean and a 16/64-inch tubing bean. This deep well is of outstanding importance because the deep zone discovery well failed to find production in the Stevens zone, and because the substantial production developed in the underlying Rio Bravo tends to indicate that the lower zone will be more nearly uniform and probably free of the lenticular condition found in the Stevens zone. No. 11-2 Kern County Land was the only well carried down to the Rio Bravo zone up to the end of June but further testing will be carried on before the close of the year.

After Standard Oil Co. completed its deep zone well, Superior Oil Co. resumed work on No. 1 Krause, an outpost in section 21-29-26, which had been suspended at 8,178 feet, after failing to find production in the Stevens zone. No. 1 Krause will search for production in the new Rio Bravo zone.

Umpire Pemberton gave Standard's No. 11-2 Kern County Land a daily allowable of 330 bbls. The discovery is of paramount importance because it indicates that the Rio Bravo, or its equivalent, may be found in the Ten Section, Canal, Canfield Ranch and other similar fields in San Joaquin Basin. Ohio Oil Co., based on a formation test, has found a potentially productive oil zone below the present commercial gas zone in the Buena Vista Lake gas field, and before the close of June had cored a second oil zone believed to be the equivalent of the Rio Bravo zone, found first by Union Oil Co. in the Rio Bravo field. Ohio's first oil sand in the Buena Vista Lake field was cored at 10,022-152 feet and consisted of 98 feet of rich oil sand. This zone was not tested out as the company continued drilling ahead. The second productive horizon was cored at 10,938-11,151 feet. After logging the second zone the company cemented a string of 7-inch casing at 11,147 feet. Ohio Oil Co. deep test is No. 8-A Kern County Land in section 32-31-26, located at the eastern end of Buena Vista Lake.

Lomita Wildcat

In the Los Angeles Basin, D. & B. Oil Co. completed a commercial producer at 253rd Street and Vermont Avenue in the Harbor City area late in June when well No. 1 in section 30-4-13 was brought in flowing 850 bbls. of clean 29.6-gravity oil and 350,000 feet of gas per day from 5,275 feet. The hole was finished with an 8⅝-inch water string landed at 5,120 feet and 180 feet of 5¾-inch liner carrying 80-mesh landed on bottom. It is in the Lomita section, about 1 mile south of the eastern end of the Torrance field, and while the lithology is apparently different, the proximity of the well to Torrance indicates that it may be a part of this old field. The area surrounding this new well contains numerous small holdings and a small town lot section and thus we are once again confronted with possible town lot development. The Lomita section of the Torrance field after a dormancy of several years is again coming to the front due to extensive deep drilling where a lower productive zone was discovered last year by Chanslor Canfield Midway Oil Co. A repetition of deep zone development is also taking place in the Rosecrans field of Los Angeles Basin in a relatively small area. The discovery of a new lower zone in the basal Pliocene and another in the upper part of the Miocene in the extreme western end of the Montebello field by St. Helens Petroleum Co. has stimulated drilling and while the productive limits were extended westward during the first half of the year developments during the next six months should prove more conclusive.

Storage Situation

The excessive rate of production coupled with a depressed demand resulted in a substantial increase in refined oil stocks on the Pacific Coast during the past several months. Stocks began increasing in September of last year and reached a peak during the month of February, 1938, when a total of 5,843,381 bbls. of crude and refined oil was put into storage. The accumulation during December, 1937, and January, 1938, also reached sizeable proportions and substantial accumulations were also recorded during March, April, and May. Realizing that the industry was faced with the necessity of taking drastic steps in order to prevent a general breakdown, the Central Committee of California Oil Producers placed the matter before all field committees and groups of operators. As a result of this concerted movement extending over a period of months, crude oil production has been gradually reduced due to additional curtailment and the adoption of a more cooperative attitude on the part of operators in the Wilmington field. For most of the first half of the year the Wilmington field was the greatest contributor to the overproduction situation. Operators in this field enhanced proration by eliminating the open flow test following completion and taking other steps to retard drilling operations and once this was accomplished state production of crude oil leveled off.

Heavy crude and refinery residuum stocks registered the largest gain during the up swing have reached a point that is causing considerable anxiety because there has not been a single break in the continuity of the accumulation which began in March of last year. Gas oil and diesel stocks have shown an increasing tendency since the early part of last year but this group of stocks has not reached serious proportions. Natural gasoline and naphtha distillates have shown wide fluctuations and appear to be within normal bounds but stocks of finished gasoline are far too large. The fuel oil situation is causing marketers more anxiety than any of the other classifications as this commodity constitutes more than 60 per cent of all liquid stocks held in Pacific Coast territory. There does not appear to be much hope of an immediate improvement in the fuel oil market.

(Continued on Page 203)

Kentucky Review

(Continued from Page 123)

not long in finding an outlet as the Aetna Refining Co. of Louisville sent barges down the Ohio River and up the Green River to take care of the production.

Drilling records in No. 1 Blackwell indicated two fresh water formations above 1,500 feet and a flow of gas from a sand at 1,538-55 feet, variously estimated at 500,000 to 2,000,000 feet. Below the gas sand a salt water formation was found at about 1,632 feet but the flow was not heavy, and open hole was carried to 1,708 feet, where 6⅝-inch casing was set. The completion of this well started a leasing and drilling campaign and at this writing in mid-July there are 18 oil wells, which are prorated to the capacity of the gathering system which can handle only about 2,500 bbls. a day. There is yet no pipe line into the field, and the river is being used altogether as a means of getting the oil out to refineries or to main line pipe lines. The oil has some sulfur content and sells at 10 cents below the regular West Kentucky market.

The McClosky lime is the big pay in the deep part of the Illinois Central Basin. It is Upper Mississippian and in Illinois, where it had the advantage of sufficient pipe line service, the wells flowed freely, but did not have long life. Nevertheless they produced largely in the short time their flush production was maintained.

It is impossible to say what the Birk City wells could do if permitted to produce to capacity, but the pool is important and while it may not cover a large area is expected to produce a large volume of oil.

Since the close of the half year the production has extended across the Green River into Daviess County and the discovery there has led to more exploratory work.

DISCUSSING RESEARCH PROBLEMS

Dr. C. Douglas Barnes, research department, Union Oil Co. of California, and Dr. L. M. Henderson, director of the Northfield Research Laboratory for Pure Oil Co., Chicago, Ill.

INDIANA

Summary of Wells Completed First Half of 1938

County—	Comp.	Prod.	Dry	Gas
Daviess	7	0	5	2
Gibson	2	0	2	0
Knox	8	10	2	5
Perry	9	15	7	0
Hancock	2	0	0	2
Henry	2	0	0	2
Jay	3	25	0	0
Pike	5	20	3	0
Jefferson	2	0	2	0
Spencer	2	9	1	0
Sullivan	9	10	7	1
Vigo	5	187	0	1
Wabash	1	0	1	0
Dearborn	1	0	0	1
Rush	1	0	0	1
Parke	1	0	1	0
Posey	2	8	1	0
Jennings	1	0	0	1
Vanderburg	1	10	0	0
Total	64	294	32	16

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	5	0	5	0
February	15	76	7	5
March	8	0	3	5
April	11	10	7	2
May	7	60	3	2
June	18	148	7	2
Total	64	294	32	16
Same period 1937	58	152	31	9
Difference	6	142	1	7

IDECO

MECHANICAL ROTARY DRILLING RIG...
FOR DEPENDABLE OPERATION

Features

Portability.

All controls centralized at driller's position.

Effortless — instantaneous reversing action.

Six drawworks speeds, two rotary speeds, and one reverse selection.

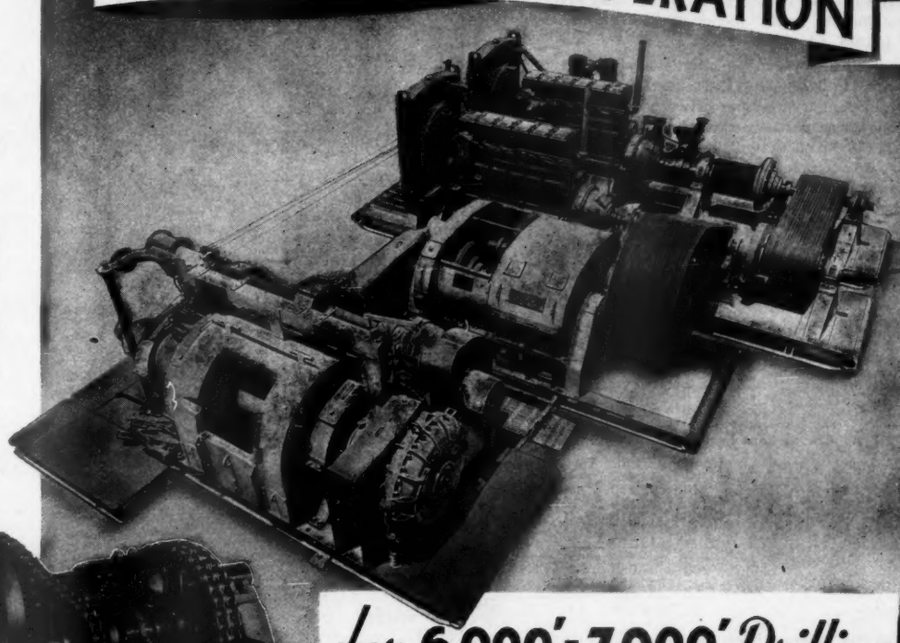
Friction clutches provided for slush pump drive, compounding drive, and the reverse and forward drives on the reverse clutch.

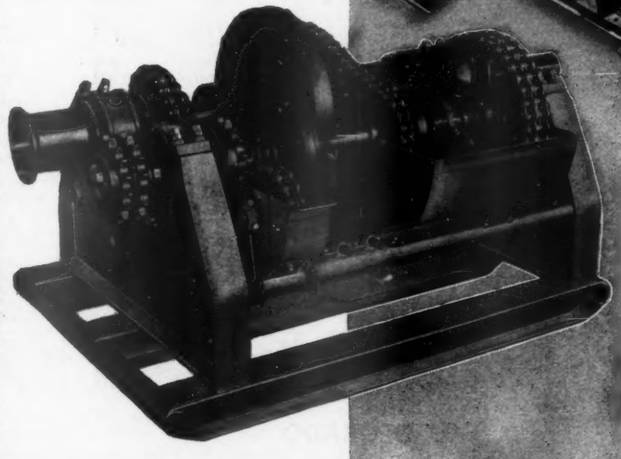
All chains operate on machine-cut sprockets.

Chain drives lubricated by "pressure-spray" oiling system.

Chains and sprockets enclosed in "dust-proof" housings.

All shafts mounted on self-aligning roller bearings.





for 6,000'-7,000' Drilling

The IDECO Mechanical Rotary Drilling Rig is a compact outfit, easily transportable and built for steady, trouble-free operation under severe service conditions.

It incorporates the Little Giant Drawworks, IDECO Two-speed Reverse Clutch and two engines mounted on skids with their pulley shafts.

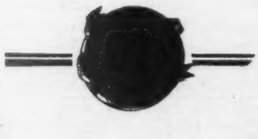
Either one or both engines can be used to operate the drawworks or the pump.

Sprockets with machine cut teeth and "pressure-spray" oiling assure unusual chain life in both the drawworks and the reverse clutch.

Drive from the power units to the pump and reverse clutch are V-belt drives, with adjustable spacers between the various skid assemblies.

Separate skid mounting for each unit facilitates transportation and a quick set-up on the job.

There is no substitute for Oil Country Experience in Building Oil Country Equipment



THE INTERNATIONAL DERRICK & EQUIPMENT CO.

DIVISION OF INTERNATIONAL-STACEY CORPORATION

Beaumont, Texas • Columbus, Ohio • Los Angeles, Calif.

PLANTS

COLUMBUS, OHIO • DELAWARE, OHIO • MARIETTA, OHIO • BEAUMONT, TEXAS • TORRANCE, CALIF.

DIVISION SALES OFFICES

NEW YORK	HOUSTON	BUENOS AIRES	SEMINOLE	PAMPA	OLNEY
DALLAS	FT. WORTH	OKLAHOMA CITY	TULSA	SHREVEPORT	GREAT BEND
ODESSA	CORPUS CHRISTI	KILGORE	WICHITA	RUSSELL	LAFAYETTE

Canadian Representative: WESTERN BRIDGE COMPANY, VANCOUVER

AN INTERNATIONAL ORGANIZATION DEVOTED TO ENGINEERING, BUILDING AND DISTRIBUTING OIL FIELD EQUIPMENT

Semi-Annual Review

FEW DISCOVERIES WERE REPORTED IN ROCKY MOUNTAIN DISTRICT

By T. R. INGRAM

The principal drilling in New Mexico in the first half of 1938 centered in the Lea County area in the southeastern portion of the state. Over 6,600 acres were added to proven territory. After deducting 10 units in the Hobbs pool and 1 in the Jal area which are no longer productive, there was a net productive area of 71,360 acres in Lea County. The total productive area for the state, including Lea County, on January 1, 1938, was 72,755 acres.

The principal activity in Lea County was in the Vacuum area in Townships 17-34, 18-34, 17-35 and 18-35. Early in January the gap between the north and south sectors was partially closed when the Magnolia Petroleum Co. No. 3 State-Bridges, C SW SE section 23-17s-34e, was completed in lime at 4,551 feet for 295 bbls. of oil with 250,000 feet of gas. The top of the pay was at 4,495 feet.

NEW MEXICO

Summary of Wells Completed First Half of 1938

County—	Comp.	Prod.	Dry	Gas
McKinley	2	5	1	0
San Juan	12	447	2	0
Lea	206	91,930	15	6
Eddy	42	4,648	8	1
Chaves	2	0	2	0
Curry	2	0	2	0
Total	266	97,030	30	7

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	41	14,422	4	1
February	40	15,110	8	0
March	55	21,876	8	4
April	48	17,678	4	0
May	41	14,787	5	2
June	41	13,157	1	0
Total	266	97,030	30	7
Same period 1937	349	355,289	29	11
Difference	83	258,259	14	5

Next to the Vacuum pool, the most active district was Eunice, in which 24 wells were completed, adding 960 acres to productive territory. This gives it 18,600 productive acres, or the second largest of the Lea County pools. The Eunice and Monument pools are separated practically by an arbitrarily established line. In the Monument area completions brought the productive total up to 19,000 acres. The Langlie area, on the east side, added 880 acres to its productive territory. The Penrose area had 27 completions, making a total of 108 wells on production.

A new pool was opened in June between the Vacuum and Maljamar areas in the Texas Co. No. 1 Corbin, C NW SW section 10-18s-33e, which was drilled to 5,118 feet and plugged back to 4,320 feet where it swabbed 129 bbls. in 12 hours. It was not a completion at last reports. The location is approximately 8 miles southwest of the Vacuum pool and 6 miles southeast of the Maljamar pool. The first show of oil on the way down was at 4,270-4,303 feet.

A new producing area was opened up in the extreme southeastern corner of Lea County in George F. Getty, Inc., No. 1 Riggs, NW cor. section 1-26s-37e, 2 miles southeast of the Jal sand pool. It topped the pay at 3,235 feet and was drilled to 3,358 feet and plugged back to 3,346 feet. It flowed 75 bbls. per day through a 1/64-inch choke on the tubing after a shot with 260 quarts at 3,234-3,346 feet.

Another discovery was 2½ miles southeast of the South Eunice pool in the Continental Oil Co. No. 1-J-2, C NW NE section 2-22s-36e. Whether it is a new pool or an extension of South Eunice is not yet certain. It flowed 64 bbls. in two hours with 8,750,000 feet of gas from the lime at a total depth of 3,800 feet. Afterwards it averaged 30 bbls. an hour on an eight-hour test through the casing. Top of the lime was at 3,776 feet.

In Eddy County two new producing areas were

NEW MEXICO

Daily Average and Monthly Production in First Six Months of 1938

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Ttl. 6 mos. (bbls.)
ARTESIA, JACKSON AND MALJAMAR:							
Daily average	7,102	6,842	5,766	6,202	5,917	5,803	
Month	220,051	191,569	178,756	186,059	183,427	174,086	1,133,948
AZTEC:							
Daily average	8	8	8	6	8	6	
Month	236	225	236	192	250	180	1,319
COOPER:							
Daily average	4,766	4,948	4,803	4 910	4,712	4,415	
Month	147,729	138,537	148,908	147,286	146,061	132,456	860,977
EAVES:							
Daily average	1,059	1,044	1,046	962	912	826	
Month	32,823	29,223	32,426	28,486	28,282	24,788	176,028
EUNICE:							
Daily average	27,533	26,622	26,282	25,189	24,257	22,312	
Month	853,516	745,413	814,740	755,655	751,958	669,360	4,590,642
HARDY:							
Daily average	1,194	1,169	1,371	1,307	1,745	1,871	
Month	37,028	32,728	42,487	39,200	54,089	56,130	261,662
HOBBS:							
Daily average	15,824	15,678	15,334	14,326	14,027	12,684	
Month	490,551	438,996	475,369	429,787	434,842	380,520	2,650,065
HOGBACK:							
Daily average	197	202	204	186	180	202	
Month	6,119	5,657	6.319	5,593	5.575	6,058	35,321
JAL:							
Daily average	1,329	1,146	1,096	1,094	1,105	1,071	
Month	41,201	32,097	33,989	32,805	34,255	32,127	206,474
LANGLIE:							
Daily average	2,631	2,966	3,040	2,819	3,402	3,329	
Month	81,549	83,051	94,238	84,557	105,458	99,862	548,715
LYNCH:							
Daily average	706	683	667	636	560	541	
Month	21,873	19,118	20,687	19,090	17,363	16,226	114,357
LYNN:							
Daily average	583	709	737	828	805	768	
Month	18,072	19,847	22,855	24,840	24,970	23,051	133,635
MATTIX:							
Daily average	2,356	2,340	2,386	2,195	2,682	2,508	
Month	73,034	65,508	73,954	65,847	83,131	75,241	436,715
MONUMENT:							
Daily average	29,534	28,991	28,000	27,299	25,337	23,276	
Month	915,540	811,757	867,990	818,957	785,449	698,276	4,897,969
PENROSE:							
Daily average	3,829	3,989	4,246	4,029	4,712	4,700	
Month	118,713	111,705	131,638	120,869	146,076	141,009	770,010
RATTLESNAKE:							
Daily average	685	667	662	710	677	665	
Month	21,221	18,671	20,524	21,291	20,994	19,959	122,660
RHOADES:							
Daily average	74	83	89	79	90	135	
Month	2,281	2,332	2,755	2,367	2,786	4,044	16,565
SKELLY:							
Daily average	1,607	1,690	1,638	1,439	1,581	1,579	
Month	49,829	47,331	50,763	43,164	49,016	47,370	287,473
SOUTH EUNICE:							
Daily average	2,621	2,566	2,805	2,763	2,745	2,696	
Month	81,254	71,846	86,945	82,887	85,088	80,869	488,889
TABLE MESA:							
Daily average	53	111	38	115	80	88	
Month	1,647	3,113	1,182	3,441	2,481	2,645	14,509
VACUUM:							
Daily average	389	662	1,234	1,119	1,440	1,692	
Month	12,072	18,530	38,239	33,570	44,629	50,762	197,802
GETTY:							
Daily average	.....	.....	.....	275	105	100	
Month	.....	.....	.....	8,259	3,247	3,000	14,506
Daily average	104,075	103,116	101,452	98,473	97,078	91,267	99,228
First six months 1938	3,226,339	2,887,254	3,145,000	2,954,202	3,009,427	2,738,019	17,960,241
First six months 1937	2,744,129	2,735,529	3,116,093	3,156,154	3,412,581	3,430,106	18,594,592
First six months 1936	1,865,049	1,838,608	2,097,447	2,055,198	2,303,441	2,183,776	12,344,519

COLORADO

Daily Average and Monthly Production in First Six Months of 1938

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Ttl. 6 mos. (bbls.)
FORT COLLINS:							
Daily average	52	56	78	100	48	83	
Month	1,616	1,558	2,413	3,002	1,495	2,490	12,574
FLORENCE AND CANYON CITY:							
Daily average	.....	.....	.....	.....	.....	217	
Month	4,660	4,261	5,994	4,946	6,324	6,515	32,700
ILES DOME:							
Daily average	3,009	2,537	2,433	2,559	2,379	2,215	
Month	93,276	71,037	75,430	76,777	73,764	66,440	456,724
ORCHARD:							
Daily average	.....	17	48	40	23	45	
Month	.....	487	1,488	1,192	709	1,356	5,232
PRICE:							
Daily average	535	513	6	453	569	518	
Month	16,598	14,368	191	13,583	17,632	15,537	77,909
RANGELY:							
Daily average	95	77	85	84	98	118	
Month	2,956	2,167	2,635	2,510	3,041	3,545	16,854
TOW CREEK:							
Daily average	140	156	171	182	163	170	
Month	4,349	4,362	5,298	5,462	5,065	5,092	29,628
WELLINGTON:							
Daily average	203	244	218	183	217	210	
Month	6,303	6,825	6,744	5,499	6,727	6,306	38,404
Daily average	4,186	3,752	3,232	3,766	3,702	3,576	3,702
First six months 1938	129,758	105,065	100,193	112,971	114,757	107,281	670,025
First six months 1937	103,705	115,079	138,643	131,611	135,891	136,658	761,587
First six months 1936	102,827	111,012	131,502	154,860	149,978	143,760	793,939

opened. One of these was in a wildcat 10 miles southwest of the Maljamar pool and same distance southeast of the Jackson area, in R. A. Shugart No. 1 Coulthard, C NW SW section 35-18s-31e. It was drilled to 4,088 feet and pumped 42 bbls. per day through the 2-inch tubing after a shot. It had the first pay at 3,440 feet with an increase in sweet oil at 3,884-88 feet.

The other discovery was 3 miles northeast of the Jackson pool and southwest of some scattered producers, in W. A. Nichols and others No. 1 Johnson, NE section 25-16s-31e. It flowed at the rate of 160 bbls. per day through a half-inch choke at 3,940 feet, total depth, from the pay at 3,887-3,911 feet.

COLORADO

The sole discovery in Colorado in the first six months of 1938 was the Texas Co. No. 1 Unit, SW SE NW section 35-3n-94, joint with the California Co., on the Wilson Creek structure, in Rio Blanco County. Late in 1937 it showed for a producer in the Morrison formation, but completion was not made until February. It was drilled to 6,918 feet, 1,131 feet above sea level. It recovered cores from the Sundance at 6,824-98 feet showing some saturation, but was unable to make a drill stem test. It was plugged back to 6,817 feet, where the 7-inch was cemented. After drilling plug and scraping the walls of the upper part of the Sundance, a tester was run and it filled up with water. The casing was then perforated at 6,665-85 feet, opposite the Morrison sand and the well flowed 492 bbls. of 46-gravity paraffin-base oil in 24 hours. It was then shut in. Elevation is 8,051 feet. No additional wells have been drilled.

The only important wildcat drilled during the first half of 1938 was the Gulf Oil Corp. No. 1 Union Pacific-Larsen, C SE NW section 13-13s-49w, in the Mount Pearl district, Cheyenne County, eastern Colorado. It was abandoned in schist at 6,360 feet. It had the top of the Pennsylvanian at 4,270 feet; the Mississippian at 5,716 feet; the Arbuckle at 5,940 feet and the Reagan sand at 6,292 feet. Elevation 4,518 feet. Only show of importance was at 4,808-13 feet, but after thorough testing it was proven noncommercial and drilling was resumed.

COLORADO

Summary of Wells Completed First Half of 1938

County—	Comp.	Prod.	Dry	Gas
Archuleta	1	0	1	0
Boulder	1	0	1	0
Cheyenne	1	0	1	0
Fremont	1	18	0	0
Huerfano	1	0	0	1
La Plata	1	0	1	0
Rio Blanco	1	492	0	0
Total	7	510	4	1

Completions by Months

Month—	Comp	Prod.	Dry	Gas
January	0	0	0	0
February	2	492	1	0
March	0	0	0	0
April	1	18	0	0
May	3	0	3	0
June	1	0	0	1
Total	7	510	4	1
Same period 1937	7	840	6	0
Difference	0	330	2	1

WYOMING

Results for the six months in Wyoming included two oil discoveries, one of major and the other of minor importance; two gas discoveries and five extensions of proven areas in producing fields, of which two were for gas and three for oil.

The major oil discovery was in the General Petroleum Corp. No. 1 Government, C NW SE section 21-35n-77w, on the Cole Creek structure, 9 miles northwest of the Big Muddy field and 14 miles northeast of Casper. It was completed in June at 8,019 feet, 3 feet in the Morrison shale. The pay is in the Lakota sand at 7,978 feet, where the 6⅝-inch was cemented, to 8,016 feet with a shale break at 7,997-8,002 feet. Swabbing test showed 35 bbls. an hour through tubing, but was unable to make it flow or lower fluid level below 5,600 feet. On a week's pumping test it averaged 10 bbls. an hour, the best gauge being 336 bbls. in 24 hours. The crude tested 32.7 gravity on the A.P.I. scale with less than one-tenth of 1 per cent sulfur. Analyses showed gasoline and naphtha, 21.4 per cent; kerosene distillate, 15.6 per cent; viscous lubricating distillate, 12.3 per cent; gas oil, 10.1 per cent; medium lubricating distillate, 3.8 per cent; residuum, 34.7 per cent; loss, 2.1 per cent. The elevation of the well at the surface is 5,600 feet. Tops were as follows: Mesa Verde, 2,240; Shannon sand, 4,500 feet, good show oil and gas; Frontier sand, 6,740, some oil saturation; Muddy sand, 7,920-26, some saturation; Dakota, 7,974-79, some saturation. General Petroleum has a unitized block of 15,000 acres, solid except for 320 acres offsetting the discovery held by the Stanolind Oil & Gas Co. The White Eagle refinery of the Socony-Vacuum Oil Co. is only 10 miles from the discovery.

The other oil discovery was on the North Big Hollow structure in Albany County in G. R. McConnell No. 1 Government, CWL SW SE section 6-15n-75w, which was completed in the Muddy sand at 890-920 feet for 25 bbls. per day of 21-gravity black oil after plugging back from 1,065 feet.

The most important of the gas discoveries was made in June on the Oil Springs structure in the Cunningham Oil Co., Inc., No. 1 Union Pacific-Cronberg, SE NE SE section 3-23n-79w, 5 miles north of the nearest well in the Allen Lake gas field and 12 miles north of the Big Medicine Bow oil and gas field. It was completed in the basal Sundance at 2,315 feet, total depth, for 55,000,000 feet per day with a rock pressure of 1,100 pounds. The 7-inch is at 2,232 feet and the elevation is 6,600 feet. First drill-stem test at 2,225-67 feet in the upper Sundance showed 3,880,000 feet; the second at 2,267-87

WYOMING

Daily Average and Monthly Production in First Six Months of 1938

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Tl. 6 mos. (bbls.)
SALT CREEK:							
Daily average	15,247	15,668	16,437	16,046	15,648	15,633	
Month	472,660	438,714	509,556	481,389	485,085	468,990	2,856,394
BADGER BASIN:							
Daily average	230	190	150	167	153	146	
Month	7,150	5,320	4,650	5,000	4,752	4,376	31,248
BIG MUDDY:							
Daily average	1,186	1,283	1,281	1,276	1,154	1,154	
Month	36,780	35,930	39,712	38,276	35,777	34,627	221,102
BLACK MOUNTAIN:							
Daily average	.....	100	150	150	148	143	
Month	.....	2,800	4,650	4,500	4,575	4,284	20,809
BOLTON CREEK:							
Daily average	7	.....	24	69	19	.....	
Month	223	.....	731	206	594	.....	1,754
BYRON:							
Daily average	2,531	.....	2,039	.....	14	1,135	
Month	78,471	.....	63,209	.....	427	34,062	176,169
DALLAS DERBY:							
Daily average	559	560	582	593	448	521	
Month	17,339	15,667	18,034	17,775	13,872	15,627	98,314
DUTTON CREEK:							
Daily average	49	55	40	52	51	52	
Month	1,521	1,531	1,230	1,554	1,584	1,563	8,983
ELK BASIN:							
Daily average	20	24	27	28	26	29	
Month	627	554	849	827	813	870	4,540
FRANNIE:							
Daily average	1,566	979	1,190	1,793	1,941	2,329	
Month	48,533	27,404	36,894	53,775	60,165	69,866	296,637
GARLAND:							
Daily average	1,823	1,763	1,811	2,132	2,478	2,613	
Month	56,514	49,354	56,128	63,966	76,829	78,397	381,188
GRASS CREEK:							
Daily average	49	7	13	13	2,008	2,405	
Month	1,528	200	393	387	62,236	72,150	136,894
GREYBULL:							
Daily average	.....	.....	.....	5	.....	.....	
Month	.....	.....	.....	150	.....	.....	150
HAMILTON DOME:							
Daily average	.....	321	.....	1,631	1,427	2,233	
Month	.....	9,000	.....	48,918	44,234	67,000	169,152
HIDDEN DOME:							
Daily average	160	150	140	135	125	134	
Month	4,960	4,200	4,342	4,056	3,875	4,020	25,453
HUDSON:							
Daily average	301	297	299	303	261	248	
Month	9,330	8,324	9,257	9,079	8,076	7,446	51,512
IRON CREEK:							
Daily average	13	.....	38	13	26	.....	
Month	415	.....	1,182	404	822	.....	2,823
LABARGE:							
Daily average	976	1,014	979	923	942	927	
Month	30,267	28,378	30,346	27,691	29,208	27,813	173,703
LANCE CREEK:							
Daily average	11,851	10,629	9,902	13,583	11,825	12,583	
Month	367,372	297,602	306,949	407,494	366,581	377,484	2,123,482
LOST SOLDIER:							
Daily average	1,518	1,612	1,674	1,526	1,691	1,685	
Month	47,052	45,130	51,889	45,772	52,423	50,550	292,816
MEDICINE BOW:							
Daily average	3,626	3,580	2,180	3,111	3,222	3,166	
Month	112,393	100,234	98,581	93,335	99,867	94,991	599,401
MIDWAY:							
Daily average	31	35	41	31	30	35	
Month	953	992	1,269	915	1,074	1,052	6,255
OREGON BASIN:							
Daily average	1,450	1,994	1,851	2,048	3,138	2,597	
Month	44,942	55,837	57,391	61,444	97,270	77,903	394,787
OSAGE:							
Daily average	704	893	910	952	781	865	
Month	21,810	25,012	28,200	28,570	24,210	25,956	153,758
PILOT BUTTE:							
Daily average	20	21	20	20	20	20	
Month	622	580	620	600	620	612	3,654
QUEALY DOME:							
Daily average	825	815	687	762	739	751	
Month	25,578	22,816	21,286	22,874	22,910	22,521	137,985
REX LAKE:							
Daily average	17	35	.....	.....	.....	.....	
Month	518	982	.....	.....	.....	.....	1,500
ROCK RIVER:							
Daily average	2,050	2,782	2,244	1,843	578	898	
Month	63,540	77,905	69,551	55,296	17,913	26,944	311,149
POISON SPIDER:							
Daily average	273	281	284	283	252	271	
Month	8,476	7,868	8,802	8,499	7,826	8,128	49,599
SOUTH CASPER CREEK:							
Daily average	492	485	492	449	490	469	
Month	15,247	13,579	15,252	13,473	15,199	14,070	86,820
SPINDLETOP:							
Daily average	24	21	25	38	31	35	
Month	730	575	762	1,143	968	1,047	5,225
TEAPOT (Outside):							
Daily average	15	23	20	21	21	20	
Month	471	637	605	622	660	606	3,601
WAUGH DOME:							
Daily average	167	.....	.....	.....	.....	.....	
Month	5,176	.....	.....	.....	.....	.....	5,176
WERTZ:							
Daily average	815	856	700	1,327	915	1,123	
Month	25,255	23,972	21,706	39,795	28,360	33,694	172,782
WARM SPRINGS:							
Daily average	18	75	75	110	110	110	
Month	550	2,100	2,335	3,300	3,410	3,297	14,992
MULE CREEK:							
Daily average	.....	.....	145	.....	.....	.....	
Month	.....	.....	4,500	.....	.....	.....	4,500
Daily average	48,613	46,543	47,447	51,370	50,717	54,332	49,858
First six months 1938	1,507,003	1,303,197	1,470,861	1,541,085	1,572,215	1,629,946	9,024,307
First six months 1937	1,512,926	1,520,217	1,760,362	1,712,305	1,718,343	1,608,141	9,832,294
First six months 1936	1,062,556	972,486	1,153,448	1,081,830	1,124,370	1,059,420	6,454,110
First six months 1935	1,028,439	936,981	1,019,743	1,118,852	1,084,698	1,160,513	6,349,226
First six months 1934	895,359	872,848	972,970	936,548	1,111,533	1,013,668	5,802,926

H_2S and CO_2 removed or recovered . . *easily, effectively* and *economically*

For the purification of refinery or natural gases, for the removal of CO_2 from synthetic Hydrogen or its recovery for dry-ice production—for any operation requiring the removal or recovery of H_2S or CO_2 from gaseous mixtures —the Girbotol Process offers the most effective and economical method ever developed.

Because it will give almost any desired degree of purification, and because it is so simple, so nearly automatic, the Girbotol Process has been adopted by many of America's leading companies.

If you have a problem involving the removal or recovery of H_2S or CO_2, it will pay you to investigate the Girbotol Process. Write today for all the facts. No obligation, of course.

The Girbotol Process is a simple, cyclic, highly effective liquid purification process covering the use of certain reagents for the removal of Hydrogen Sulphide, Carbon Dioxide and other acidic gases from gaseous mixtures. . . The reagents themselves are comparatively inexpensive and are reactivated without loss simply by boiling off the H_2S, CO_2 or other recovered acidic gases. The equipment required in the Process is relatively small, inexpensive and "standard". . . The Girbotol Process is both broadly and specifically protected by U. S. Letters Patent Re. No. 18,958, and other U. S. and foreign Letters Patent owned and licensed solely by The Girdler Corporation.

The Girdler Corporation
INCORPORATED
Gas Processes Division
Louisville · Kentucky

feet showed 9,210,000 feet and the third at 2,287-2,315 feet gauged 27,000,000 feet. Casing was then set and well completed for 55,000,000 feet initial. The company owns leases on all the Union Pacific land on the structure and the Ohio Oil Co. has the state, federal and private land.

The other gas discovery was made on the Beaver Creek structure, 14 miles east of the town of Riverton, in Fremont County, in the Stanolind Oil & Gas Co. No. 1 Government, C SE SE section 3-33n-96w, which was drilled on a seismograph high and completed for 9,000,000 feet through perforated casing opposite the Morrison sand at 8,230-85 feet. The well tested the Nuggett or basal Sundance sand at 8,809-8,920 feet, which showed water and no oil or gas. A 7-inch liner was then cemented at 7,387-8,915 feet and perforated opposite the gas sand. The top of the Sundance formation was at 8,490 feet. The base of the Frontier was at 7,360 feet. The Tertiary is at the surface.

In the Lance Creek field the Ohio Oil Co. No. 5 Cash OPC-2, NW NW NE section 4-35n-65w, added about 60 acres to the Sundance area on the east side when it was completed for 500 bbls. per day in the basal Sundance at 4,091-4,129 feet. The Argo Oil Co. No. 5 Ford, SW SW SE section 33-36n-65w, proved up 40 acres for Sundance production, and flowed 650 bbls. in 24 hours at 4,076 feet, total depth, from sand topped at 3,872 feet. The Continental Oil Co. No. 12 Tom Bell 1-0, C SE SE section 33, an east offset to Argo No. 5 Ford, further extended the Sundance, and made 969 bbls. the first 24 hours from sand at 3,947-4,002 feet.

WYOMING

Summary of Wells Completed First Half of 1938

County—	Comp.	Prod.	Dry	Gas
Albany	3	165	1	0
Big Horn	1	15	0	0
Carbon	8	3,258	2	2
Converse	11	50	7	3
Crook	1	8	0	0
Fremont	3	203	0	1
Hot Springs	2	100	1	0
Lincoln	1	0	0	1
Natrona	6	1,058	1	0
Niobrara	17	18,372	1	1
Park	2	4	0	1
Sweetwater	8	384	1	3
Washakie	2	0	2	0
Weston	12	142	3	0
Total	77	23,759	19	12

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	12	3,422	1	4
February	12	957	2	2
March	17	7,802	7	3
April	8	5,284	2	0
May	19	4,302	5	2
June	9	1,992	2	1
Total	77	23,759	19	12
Same period 1937	53	25,528	15	3
Difference	24	1,769	4	9

The most important of the deep sand wells was C. L. Price No. 1 Lamb, NE NW NW section 7-35n-65w, which extended the Leo sand pool one-fourth of a mile to the west. It was completed at 5,401 feet with the 7-inch at 5,370 feet and averaged 63 bbls. per hour on a 15-hour test. Elevation is 4,461 feet. Hewitt Brothers & Manning No. 1 Pecklow, SE SE SE section 1-35n-66w, an offset on the northwest to the Price well, had water in the top of the Leo sand at 5,635 feet and was shut down for orders at 5,677 feet. It apparently marks the edge of production in that direction.

An extension in the Leo sand was made on the southeastern side of the field in the Continental Oil Co. No. 3-A Diehlman, SE SE SW section 5-35n-65w, nearly a mile out from the nearest producer. It made 68 bbls. per hour through the tubing at 5,404 feet, total depth. The Leo sand was at 5,346-5,402 feet and the elevation is 4,464 feet. A mile to the northeast, but on the same contour, the Ohio Oil Co. No. 10 Carrie Putnam, NW SE NW section 4-35n-65w, flowed 45 bbls. in one hour from the pay at 5,405-64 feet. Elevation, 4,442 feet.

Four semiwildcats drilled in the area between North Baxter Basin and South Baxter Basin gas field in Sweetwater County resulted in three small gas wells and one dry hole. The district is called the Middle Baxter Basin structure.

Considerable drilling in the Shawnee area in Converse County, where some oil and gas has been found at around 600 feet in a sand in the base of the White River formation of Tertiary age, attracted attention. In June, 1937, the Wyoming Southern Oil Co. No. 1 Evert, NW NW SW section 26-32n-69w, was completed as a discovery for 25 bbls. per day at 560 feet. Drilling this year extended a distance of 7 miles east and west of the discovery. The New Era Fuel Co. No. 1 Gaspar, NW NW

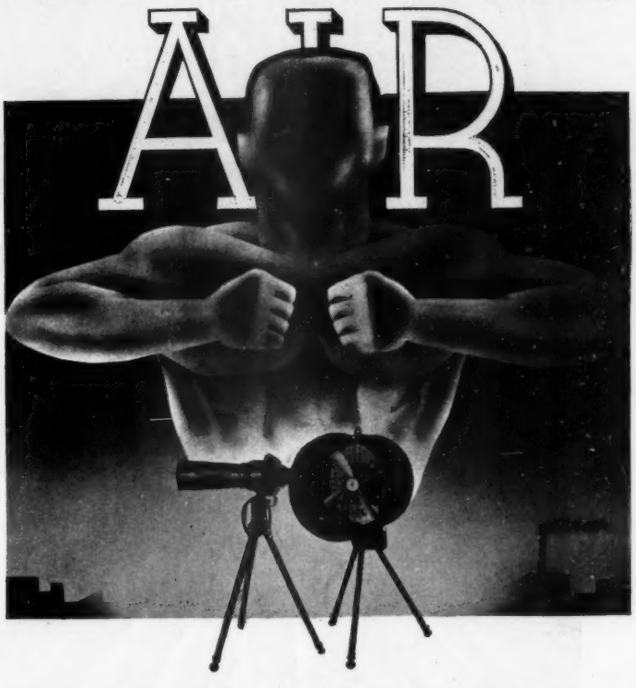
(Continued on Page 138)

MONTANA

Daily Average and Monthly Production in First Six Months of 1938

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Tl. 6 mos. (bbls.)
BORDER:							
Daily average	76	63	.....	111	.....	110	
Month	2,350	1,751	.....	3,329	.....	3,296	10,726
CAT CREEK:							
Daily average	639	600	503	623	552	591	
Month	19,802	16,802	15,582	18,693	17,103	17,742	105,724
CUT BANK:							
Daily average	6,531	7,003	7,405	8,023	7,440	8,016	
Month	202,452	196,107	229,548	240,690	230,647	240,480	1,339,924
DRY CREEK:							
Daily average	604	1,064	1,004	1,607	1,420	1,420	
Month	18,725	29,799	31,137	48,214	44,016	42,589	214,480
KEVIN-SUNBURST:							
Daily average	3,318	3,229	3,203	3,766	3,420	3,774	
Month	102,856	90,406	99,300	112,970	106,018	113,228	624,778
PONDERA:							
Daily average	705	883	773	583	631	712	
Month	21,868	24,714	23,952	17,503	19,568	21,363	128,968
Daily average	11,873	12,842	12,888	14,713	13,463	14,623	13,496
First six months 1938	368,053	359,579	399,519	441,399	417,352	438,698	2,424,600
First six months 1937	413,728	413,356	484,552	548,209	560,824	540,559	2,961,228
First six months 1936	369,148	295,191	482,391	488,100	532,053	516,660	2,683,543
First six months 1935	348,101	302,697	321,665	323,965	325,205	312,071	1,933,704
First six months 1934	223,641	196,789	220,434	235,504	275,544	247,687	1,399,599

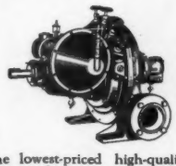
life breath for Industry



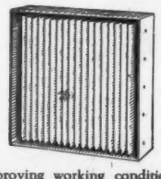
In manholes or in *any* confined working space: tunnels, pipe galleries, process tanks, storage bins, etc., the *Cable Manhole Ventilators* (Bulletin 163).

600 cubic feet of air a minute ventilates tank cars through the nipple or manhole. Wt. 55 lbs. *The Tank Car Blower.* Ask for information.

For directing a flow of cool air upon workmen (also cooling off furnaces, ventilating motors, generators, etc.) the *Heat Killer* (Bulletin 160-4).

★ 

★ The lowest-priced high-quality steam turbine you can buy. 6 sizes from 1 to 150 H.P. (Bulletin 135-8).

★ 

Improving working conditions, reducing dust-caused maintenance, protecting product purity, for recovering valuable airborne substances, — the Coppus Unit-Type Air Filter. (Bulletin F-320-4).

The Coppus line of specialized air moving equipment (among a thousand other uses) drives out foul air and gases in working places where "down-time" is expensive — where good atmosphere must exist for safety's sake — and efficiency.

Other ways to use Coppus air movers —

For directing air where you want it: *Engineered* to produce exactly the conditions you expect. No Coppus product is made for "general" use. Each is built for the one job it does, whether high speed blasts, or soft breezes . . . for men, for machines, for every place in the industrial picture where *air* can help production. When a Coppus Blower is built, for instance, it is designed *around* a motor . . . not built and then attached to a motor. We'll gladly give you more information, if you will submit to us your company's specific air problem.

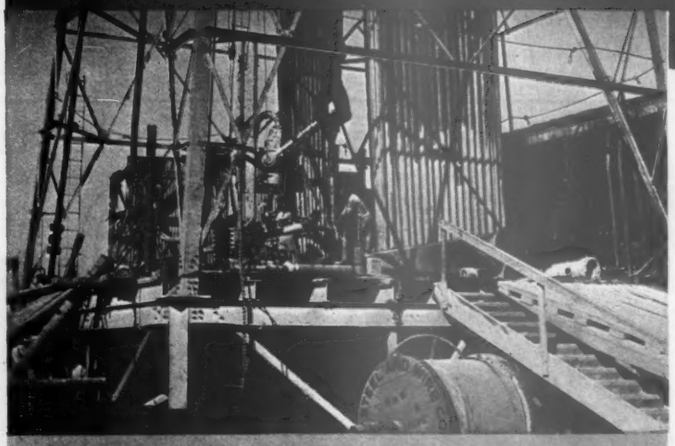
COPPUS CLEANS . . . MOVES . . . EMPLOYS AIR

There's a Coppus blower (or exhauster) to suit your plant's individual needs. Write Coppus Engineering Corporation, 375 Park Avenue, Worcester, Mass. See listing in THOMAS' REGISTER. In SWEET'S: Air Filters for air compressors, engines, and plant installations. Air moving equipment. Steam Turbines. Portable Mine Ventilation equipment.

COPPUS PRODUCTS — Designed for your industry — Engineered for you

ONE OF THE

Richest



DRILLING AT 10,000 FEET *with 4½-inch O.D.* NATIONAL *Seamless Drill Pipe. In the left foreground, note part of the 10,500-foot string of 5-inch O.D.* NATIONAL *Seamless Casing to be used here, and standing in the derrick, a string of 2½-inch* NATIONAL *Seamless Tubing.*

A STRING OF NATIONAL SEAMLESS DRILL PIPE, *ready to penetrate the toughest strata thousands of feet below the surface. Drillers of this well took the surest step they knew to prevent troublesome delays. They specified America's finest, strongest drill pipe —* NATIONAL *Seamless.*

A STAB, A SPIN, AND IN SHE GOES! *Two men guiding a section of* NATIONAL *Seamless Drill Pipe into threads that are correctly designed to resist damage during making up. Twist-offs and wash-outs are mighty rare with* NATIONAL *Seamless because of its uniform wall strength — Walls Without Welds!*

SETTING DOWN A RECORD STRING *of 16-inch O.D.* NATIONAL *Seamless Casing. This string was completely run 4,125 feet, ready for cementing 23½ hours after it was started. That's the kind of trouble-free performance you get with* NATIONAL *Seamless.*

t Strikes SEAMLESS!

Deeper wells made practical when oil men "discovered" National Seamless advantages for Drill Pipe, Casing, Tubing

IT was a great strike for the oil and gas industry the day NATIONAL Tube Company introduced the first seamless pipe for oil country purposes. From the very first, we were confident that Seamless drill pipe, casing, and tubing would out-perform all others.

The oil industry shared that confidence. For the use of NATIONAL Seamless tubular products steadily increased. Oil men now agree, almost unanimously, that the development of Seamless was a vital factor in eliminating tubular troubles encountered in the early days of oil production.

It was 25 years ago when NATIONAL Tube introduced the first Seamless Drill Pipe. The effect was immediate. Drillers began extending their search for oil to deeper levels, through tougher layers of sub-strata. *And they are still going deeper.*

NATIONAL Tube has pioneered no less than nine important applications of the Seamless principle. Each has helped make oil production more efficient, more trouble-free. Taken as a group, these pioneering feats have saved untold sums of money by preventing costly material failures and avoiding needless interruptions.

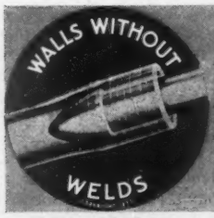
We are proud to list these nine milestones in the march of Seamless. They are tangible evidence of the pioneering work that NATIONAL Tube has been carrying on since the oil industry began. Only by progressive achievement like this could NATIONAL Tube have earned, and held, its position of leadership.

OUTSTANDING SEAMLESS DEVELOPMENTS PIONEERED BY NATIONAL TUBE

- Seamless Drill Pipe
- Seamless Upset Tubing
- Seamless Long Threads and Couplings
- Seamless Grade D Casing*
- Seamless High Tensile Couplings
- Seamless Rounded Form of Thread
- Seamless Electro-Galvanized Threads and Couplings
- Seamless Normalized Tubing Grade C for Corrosive Conditions
- Seamless Cement Lined Casing and Tubing

To be sure of getting the newest, most up-to-date improvements in Drill Pipe, Casing, and Tubing, always specify NATIONAL Seamless. NATIONAL's policy is to bring you finer, stronger tubular goods, and bring them to you FIRST!

* National Tube Company is the only manufacturer in America making *Seamless* Casing above 16" O.D.



THE NATIONAL SEAMLESS process consists, fundamentally, of piercing solid billets of the finest quality steel. Only sound and flawless steel can be used for piercing. Every tube is thoroughly inspected and tested at every stage in production. Every possible precaution is taken to prevent the inclusion of any weakness in the finished tube.

NATIONAL TUBE COMPANY

PITTSBURGH, PA.

United States Steel Products Company, New York, *Export Distributors*

UNITED STATES STEEL

W-S FORGED STEEL FITTINGS

For complete satisfaction on lines carrying oil or gas under high pressures and high temperatures, specify W-S Forged Steel Fittings.

They are bored from solid steel forgings, have sharp accurately cut threads and every fitting is carefully inspected and tested.

You will find them definitely stronger, longer lived and more dependable under the most severe conditions.

The better service insured by W-S Fittings is expressed in dollars saved in maintenance.

Write for Bulletin A-3.

THE WATSON-STILLMAN CO.
ROSELLE, N. J.

Sturdy *in every part*

THICK body walls, heavy flanges, large bolts, and deep stuffing boxes are characteristic of every Kennedy Valve type. Operating mechanisms are simple, strong and positive in action, stems are of specially tough metal, and handwheels are amply large for easy leverage.

Whether you require valves for low, medium, extra heavy or hydraulic pressures, you will find an exactly suitable Kennedy Valve type which has proven its reliability in many thousands of installations in the oil and gas industry.

The Kennedy Valve Mfg. Co.
Elmira, N. Y.

Send for the Kennedy Catalog

KENNEDY
VALVES-PIPE FITTINGS-FIRE HYDRANTS

SW section 25, a mile to the east, was completed at 870 feet as a dry hole. No. 2 Gaspar, a south offset, is estimated at 50 bbls. per day in sand at 655-670 feet. Six miles southwest of No. 1 Evert, the oil discovery, the New Era Fuel Co. No. 2 Boot Cattle, C SE SE section 1-31n-70w, made 1,500,000 feet at 248 feet. Two and one-half miles west of No. 1 Evert, the Sand Creek Oil Co. No. 1 Prokesh, NW SW SE section 29-32n-69w, was estimated at 10,000,000 feet at 633 feet. In the area between these wells five dry holes have been drilled and several gassers making from 2,000,000 to 9,000,000 feet initially were completed. No deep test has been made, although one is under way at 1,500 feet.

MONTANA

Exploration in Montana resulted in one discovery in a deeper horizon in a gas well drilled to the north of the Cut Bank field, an extension of the gas area in the same district, and an extension of an oil discovery made last year to the west of the Kevin-Sunburst field. There were no new oil pools found.

The gas discovery in a deeper horizon was made in A. B. Cobb No. 1 State, C NE NE section 30-37n-4w, in Glacier County, midway between the Border field on the Canadian boundary and the Cut Bank gas field. This well was drilled to 2,595 feet last December and gauged 8,000,000 feet per day from the Moulton sand at 2,572-85 feet. It was then shut in until May when it was deepened to 2,605 feet, where it gauged 40,000,000 feet. The increase came from the second Moulton sand which correlates with the basal Moulton sand found in the same company's No. 1 McReynolds, a dry hole 5½ miles to the southwest. The well is shut in and did not go to the Sunburst sand.

MONTANA

Summary of Wells Completed First Half of 1938

County—	Comp.	Prod.	Dry	Gas
Big Horn	2	0	0	2
Fergus	1	0	1	0
Glacier	11	434	3	2
Hill	1	0	1	0
Toole	25	1,214	7	0
Yellowstone	1	40	0	0
Total	41	1,688	12	4

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	3	150	2	0
February	3	70	1	0
March	7	380	2	2
April	5	159	0	1
May	15	716	5	1
June	8	213	2	0
Total	41	1,688	12	4
Same period 1937	86	6,616	18	9
Difference	45	4,928	6	5

The McReynolds well, 150 feet east of C of S half section 15-36n-5w, was plugged and abandoned at the end of 1937 after testing the Moulton and Cut Bank sands to 2,840 feet. It was located a mile to the north of the nearest gasser in the Cut Bank field and looked as though it marked the limits of the gas area in that direction. However, in April, the Glacier Production Co. No. 1 McNamar Unit, CEL SE NE section 15-36n-5w, half a mile northeast of the McReynolds failure, was completed at 2,664 feet in the Cut Bank sand for 17,000,000 feet per day, a better well than the average. It is directly on a northeast trend from the No. 1 McReynolds dry hole to the Cobb No. 1 State, 5 miles to the northeast. It had 2,000,000 feet in sand at 2,480-2,500 feet; 2,850,000 feet at 2,535-37 feet; 7,200,000 feet at 2,598-2,612 feet and increased to 17,000,000 feet at 2,650-62 feet. Elevation is 4,030 feet.

An extension west of Kevin-Sunburst took place in G. H. Lund No. 1 Dahlen, C SE NW section 35-35n-4w. It pumped 5 bbls. per day naturally from the contact at 2,056-57 feet. It was not acidized and if it responds when treated as do other wells in the district, it probably will make better than 100 bbls. The discovery in this district was made last year in Pfabe & Engleking No. 1 Innerberg, NW SE SE section 26-35n-4w. It flowed 100 bbls. the first 24 hours through the casing after acidizing. In April this year R. G. Parrant No. 1 Anderson, an offset on the southwest of the discovery, was a small well after acidizing. No. 1 Dahlen, which is on the same trend as these two wells, is half a mile to the southwest. Two dry holes limit the pool on the northwest and northeast. This group of wells is only 1 to 2 miles east of the escarpment around the Kevin-Sunburst field.

UTAH

The Clay Basin gas field in Daggett County, northeastern Utah, which was extended three-fourths of a

(Continued on Page 158)

Semi-Annual Review

COASTAL LOUISIANA LED TEXAS GULF COAST AREA IN DISCOVERIES

By NEIL WILLIAMS

HOUSTON, Tex.—The opening of the first oil field in the Gulf of Mexico and the establishment of the Coastal Louisiana district as the world's deepest producing district, were the featured developments along the Gulf Coast during the first six months of 1938. For the first time, the number of new discoveries in Coastal Louisiana surpassed the Texas Coast as a total of nine pools were opened, compared to six fields for the Texas district.

Drilling operations along the Texas coast showed a decrease with a total of 671 completed wells, compared to 760 during the first half of 1937. Of this total, 133 were dry holes and 17 gas wells. In Coastal Louisiana, a slight increase was recorded with a total of 239 completed wells of which 88 were dry holes and 4 gas wells.

The first wildcat drilled in the Gulf of Mexico, resulted in the discovery of the Creole field, about 1½ miles offshore from Cameron Parish in Coastal Louisiana. The discovery was made by a joint test drilled by Superior Oil Co. and Pure Oil Co. Completion was made in the Miocene sand at 5,110-80 feet, and the well flowed 250 bbls. of 42-gravity oil daily through a 7/64-inch choke. The hole was drilled to a total depth of 9,394 feet where it was reported to have shown considerable gas pressure, but the section was not tested due to mechanical trouble.

World's Deepest Oil Pool

A continuation of deeper exploration, resulted in the world's deepest field, in southern Terrebonne Parish. The discovery well, No. 1 Buckley-Bourg, section 77-19s-17e, was drilled by Fohs Oil Co., and was completed for an unestimated gauge of distillate through perforated casing at 13,254-66 feet. The hole was drilled to a total depth of 13,333 feet and the well is producing from the Miocene sand.

In Jefferson Davis Parish, Union Sulphur Co. opened the Woodlawn prospect as a distillate field and several months later established it as an oil field by drilling a second well. The discovery well, No. 1 Calcasieu National Bank, section 12-9s-6w, flowed 46 bbls. of distillate through perforated casing at 8,276-81 feet. The company's second test, No. 2 Calcasieu National Bank, flowed 586 bbls. of pipe line oil from a deeper sand through perforated casing at 8,894-93 feet. The well produced at this rate for two days, but was killed, owing to salt water intrusion and was finally completed for a small oil well in the discovery sand. It continues to make some salt water.

In the north central part of Lafourche Parish, section 34-15s-19e, Amerada Petroleum Corp. and Louisiana Land & Exploration Co. opened the Raceland field with the completion of No. 1 South Coast Corp. The hole was drilled to a total depth of 10,314 feet, and completion was made in the Miocene sand through perforated casing at 10,183-10,201 feet. On an initial 24-hour gauge the well flowed 536 bbls. through a quarter-inch choke. Additional development was soon started.

Gulf Oil Corp. opened the Timbalier Bay field, Lafourche Parish, with the completion of No. 3 State, section 36-23s-21e. The structure was proven a salt dome when salt formation was topped at 7,741 feet, and cored to a total depth of 8,728 feet. The hole was plugged back and the well completed in Miocene sand through perforated casing at 6,955-59 feet, for an initial production of 304 bbls. per day through a ¼-inch choke. The second test started on the structure is drilling below 10,000 feet and several sands below the discovery horizon have been logged.

Near the Louisiana State University in East Baton Rouge Parish, Louisiana Crusader Oil Co. opened the South Baton Rouge or University field, with the completion of No. 1 Duplanter, section 65-7s-1w. Oil sand

LOUISIANA GULF COAST

Daily Average and Monthly Production in First Six Months of 1938

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Tot 6 mos. (bbls.)
ABBEVILLE:							
Daily average	5	335	743	815	801	667	
Month	155	9,380	23,033	24,450	24,831	20,010	101,859
ANSE LA BUTTE:							
Daily average	349	290	277	216	324	316	
Month	10,819	8,120	8,587	6,480	10,044	9,480	53,530
BAYOU MALLET:							
Daily average	.....	.....	18	229	146	239	
Month	.....	.....	558	6,870	4,526	7,170	19,124
BAYOU SALE (Horseshoe Bayou):							
Daily average	420	404	394	387	655	753	
Month	13,020	11,312	12,214	11,610	20,305	22,590	91,051
BLACK BAYOU:							
Daily average	3,793	3,752	3,768	3,794	3,750	3,482	
Month	117,583	105,056	116,808	113,820	116,250	104,460	673,977
BOSCO:							
Daily average	6,263	6,042	6,147	6,047	6,092	6,045	
Month	194,153	169,176	190,557	181,410	188,852	181,350	1,105,498
CAILLOU ISLAND:							
Daily average	18,080	18,119	19,163	19,168	17,225	17,389	
Month	560,480	507,332	594,053	575,040	533,975	521,670	3,292,550
CAMERON MEADOWS:							
Daily average	3,514	4,067	4,080	4,100	3,937	3,860	
Month	108,934	113,876	126,480	123,000	122,047	115,800	710,137
CHARENTON:							
Daily average	1,244	1,782	2,147	2,510	2,587	3,137	
Month	38,564	49,896	66,557	75,300	80,197	94,110	404,624
CHENEYVILLE:							
Daily average	177	174	174	426	444	467	
Month	5,487	4,872	5,394	12,780	13,764	14,010	56,307
CHOCTAW:							
Daily average	1,262	1,146	1,184	1,096	1,213	1,656	
Month	39,122	32,088	36,704	32,880	37,603	49,680	228,077
CREOLE:							
Daily average	.....	.....	.....	247	280	283	
Month	.....	.....	.....	7,410	8,680	8,490	24,580
CROWLEY (North):							
Daily average	613	867	924	813	818	719	
Month	19,003	24,276	28,644	24,390	25,358	21,570	143,241
DARROW:							
Daily average	1,444	1,372	1,452	1,325	2,422	2,639	
Month	44,764	38,416	45,012	39,750	75,082	79,170	322,194
DOG LAKE:							
Daily average	2,462	2,516	2,024	1,631	1,314	1,577	
Month	76,322	70,448	62,744	48,930	40,734	47,310	346,488
EAST BATON ROUGE:							
Daily average	.....	.....	.....	359	452	288	
Month	.....	.....	.....	10,770	14,012	8,640	33,422
EDGERLY:							
Daily average	167	177	168	159	157	155	
Month	5,177	4,956	5,208	4,770	4,867	4,650	29,628
GARDEN ISLAND:							
Daily average	2,498	2,293	2,295	2,974	2,805	2,306	
Month	77,438	64,204	71,145	89,220	86,955	69,180	458,142
GIBSON:							
Daily average	3,017	3,010	3,284	2,417	2,393	1,892	
Month	93,527	84,280	101,804	72,510	74,183	56,760	483,064
GILLIS:							
Daily average	9,239	9,631	9,343	8,941	9,253	8,686	
Month	286,409	269,668	289,633	268,230	286,843	260,580	1,661,363
GUEYDAN:							
Daily average	446	448	444	440	439	437	
Month	13,826	12,544	13,764	13,200	13,609	13,110	80,053
HACKBERRY (East):							
Daily average	8,246	7,899	7,535	7,294	7,062	6,792	
Month	255,626	221,172	233,585	218,820	218,922	203,760	1,351,885
HACKBERRY (Old):							
Daily average	2,920	3,004	2,605	2,916	3,557	3,498	
Month	90,520	84,112	80,755	87,480	110,267	104,940	558,074
IOWA:							
Daily average	16,122	15,941	15,001	15,627	15,421	16,933	
Month	499,782	446,348	465,031	468,810	478,051	507,990	2,866,012
JEANERETTE:							
Daily average	6,920	6,912	7,500	7,251	7,087	7,048	
Month	214,520	193,536	232,500	217,530	219,697	211,440	1,289,223
JENNINGS:							
Daily average	15,785	15,653	17,797	19,007	19,636	19,952	
Month	489,335	438,284	551,707	570,210	608,716	598,560	3,256,812
LAFITTE:							
Daily average	15,142	15,143	17,186	17,614	13,809	15,559	
Month	469,402	424,004	532,766	528,420	428,079	466,770	2,849,441
LAKE BARRE:							
Daily average	2,518	2,386	2,381	2,023	1,894	1,832	
Month	78,058	66,808	73,811	60,690	58,714	54,960	393,041
LAKE LONG:							
Daily average	340	573	748	722	680	643	
Month	10,540	16,044	23,188	21,660	21,080	19,290	111,802
LAKE PELTO:							
Daily average	743	862	1,514	1,502	1,285	1,276	
Month	23,033	24,136	46,934	45,060	39,835	38,280	217,278
LAKE WASHINGTON:							
Daily average	1,200	1,198	975	876	749	984	
Month	37,200	33,544	30,225	26,280	23,219	29,520	179,988
LEESVILLE:							
Daily average	5,950	6,294	5,444	4,597	4,890	4,982	
Month	184,450	176,232	168,764	137,910	151,590	149,460	968,406
LIRETTE:							
Daily average	.....	600	35	36	37	28	
Month	.....	16,800	1,085	1,080	1,147	840	20,952
LOCKPORT:							
Daily average	1,171	990	995	884	980	1,012	
Month	36,301	27,720	30,845	26,520	30,380	30,360	182,126
NEW IBERIA:							
Daily average	13,772	13,536	13,068	13,707	13,513	14,781	
Month	426,932	379,008	405,108	411,210	418,903	443,430	2,484,591
PORT BARRE:							
Daily average	1,343	1,212	1,366	1,791	2,102	1,897	
Month	41,633	33,936	42,346	53,730	65,162	56,910	293,717

(Continued on Page 142)

was cored in the Marginulina formation at 6,472-77 feet, the total depth, and the well flowed 465 bbls. of 33.2-gravity oil per day through a quarter-inch choke. Prior to the discovery two dry holes had been drilled in the area, and as one dry hole has been drilled since the discovery it is doubtful if the field will be proven a major reserve.

Additional development for the Conroe Trend in Louisiana was encouraged as a result of the Bancroft field in Beauregard Parish, discovered by Republic Production Co. with the completion of No. 1 Lutcher Moore Lumber Co., section 10-6s-13w. Completion was made in the Cockfield formation through perforated casing at 7,572-79 feet, and the well flowed 50 bbls. of distillate and an estimated 3,500,000 feet of gas daily through a three-quarters inch choke.

The Jefferson Island salt dome, Iberia Parish, one of Coastal Louisiana's oldest known salt structures, was proven for prolific production when Texas Co. completed No. 1 Bayless-Jones, section 58-12s-5e, for an initial production of 600 bbls. per day through a 10/64-inch choke. Salt was topped at 8,683 feet and cored to a total depth of 9,031 feet. After making an electrical survey of the hole, the well was completed through perforated casing at 8,170-8,210 feet.

LOUISIANA GULF COAST

Summary of Wells Completed First Half of 1938

Field—	Comp.	Prod.	Dry	Gas
Abbeville	3	595	1	0
Anse La Butte	6	115	4	0
Bateman Lake	1	350	0	0
Bayou Blue	2	0	2	0
Bayou Des Allemands	1	0	1	0
Bancroft	1	168	0	0
Bay St. Elaine	4	0	4	0
Big Lake	1	0	1	0
Black Bayou	3	835	0	0
Bosco	2	368	0	0
Caillou Island	2	418	1	0
Cameron Meadows	4	1,580	0	0
Charenton	23	3,983	6	0
Cheneyville	1	492	0	0
Creole	1	510	0	0
Crowley—North	8	2,996	3	0
Crowley—South	1	35	0	0
Darrow	4	2,009	1	0
Dog Lake	2	1,347	1	0
Edgerly	1	0	1	0
Elton—South	1	0	1	0
Fausse Point	1	25	0	0
Four Isle	1	0	1	0
Garden Island Bay	5	3,372	0	0
Gibson	5	4,245	0	0
Gillis	2	0	1	1
Horseshoe Bayou	1	350	0	0
Iowa	1	112	0	0
Jeanerette	5	4,414	2	0
Lafitte	4	2,619	0	0
Lake Hermitage	1	5	0	0
Lake Long	1	416	0	0
Lake Pelto	1	946	0	0
Leesville	2	1,335	0	0
Lirette	2	0	2	0
Lockport	1	0	1	0
New Iberia	12	3,131	4	0
Port Barre	2	990	0	0
Potash	10	0	10	0
Hackberry	13	1,519	4	1
Jennings	26	9,971	1	0
Jefferson Island	1	600	0	0
Raceland	1	720	0	0
Roanoke	6	1,024	2	0
Sorrento	2	559	0	0
South Baton Rouge	2	465	1	0
South Jennings	1	51	0	0
Starks	2	174	0	0
Sulfur	7	722	2	1
Tepetate	1	222	0	0
Timbalier	1	304	0	0
Valentine	6	219	4	1
Venice	4	1,158	1	0
Villa Platte	8	3,769	0	0
Vinton	3	115	1	0
Welsh	2	0	2	0
White Castle	3	584	1	0
Woodlawn	2	636	0	0
Miscellaneous	21	0	21	0
Total	239	60,573	88	4

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	58	12,312	32	0
February	30	7,416	10	1
March	45	12,367	13	1
April	33	6,415	12	2
May	33	8,901	12	0
June	40	13,162	9	0
Total	239	60,573	88	4
Same period 1937	214	70,302	76	4
Difference	25	9,729	12	0

Another salt structure which has shown evidence of production is the Vermilion Bay dome, Iberia Parish, where Texas Co. No. 2-B Vermilion Bay, blew out from a total depth of 9,667 feet and made an unestimated amount of dry gas.

The development of new sands in several fields continued to enlarge the potentiality of the district. In the North Crowley field, Acadia Parish, Humble Oil & Refining Co. No. 3 Federal Land Bank opened a shallow sand at 7,747-51 feet, in section 34-8s-1e. In the same parish and located in the Jennings field, Superior Oil Co. No. 1 Jules Clement established production on the northwest flank of the dome at 6,950-77 feet. This was the first well drilled on this section of the dome, and the completion has resulted in an extensive development program.

In the Lake Hermitage field, Plaquemines Parish, Gulf Oil Corp. No. 7 Lafourche, section 12-18s-15e, produced distillate from a new sand through perforated casing at 8,720-40 feet.

Pan American Production Co. operations at the Valentine, Charenton and Sorrento fields of Lafourche, St. Mary and Ascension parishes, resulted in several new sands. Other structures receiving new sand discoveries included the Choctaw dome, Iberville Parish, opened by Louisiana Crusader Oil Co. and at the Lockport field, Caicasieu Parish, by Continental Oil Co. on the J. H. Moss lease, on the west flank of the dome.

The South Crowley field, Acadia Parish, was opened by Humble Oil & Refining Co. No. 1 Boyd Finch, section 22-10s-1e, which was completed for a small producer through perforated casing at 7,311-13 feet. The well flowed 35 bbls. of oil and 65 bbls. of salt water daily through a 5/32-inch choke. After flowing for several days, the well was killed and the company was preparing to recomplete in a sidetracked hole in an attempt to eliminate the salt water.

Texas Coastal Discoveries

Of the six discoveries opened along the Texas Coast, probably the most important from a development standpoint has been the Fairbanks field, Harris County, opened by Amerada Petroleum Corp. and Stanolind Oil & Gas Co. on the E. M. Mills lease, A. Larson Survey, 3 miles northwest of the Satsuma field. The hole was drilled into salt water sand at a total depth of 6,863 feet, and the completion was made in the Upper Saline Bayou formation through perforated casing at 6,838-52 feet. On an initial gauge the well flowed 675 bbls. per day through a quarter-inch choke. The near-at-hand expiration of leases, resulted in an extensive drilling campaign, which had at the end of June accounted for 31 producers being completed. The structure has been defined in several directions and a decline in drilling operations is anticipated.

The Cedar Point field, located in Galveston Bay,

IXL Helical Reducers
For Uninterrupted Production!

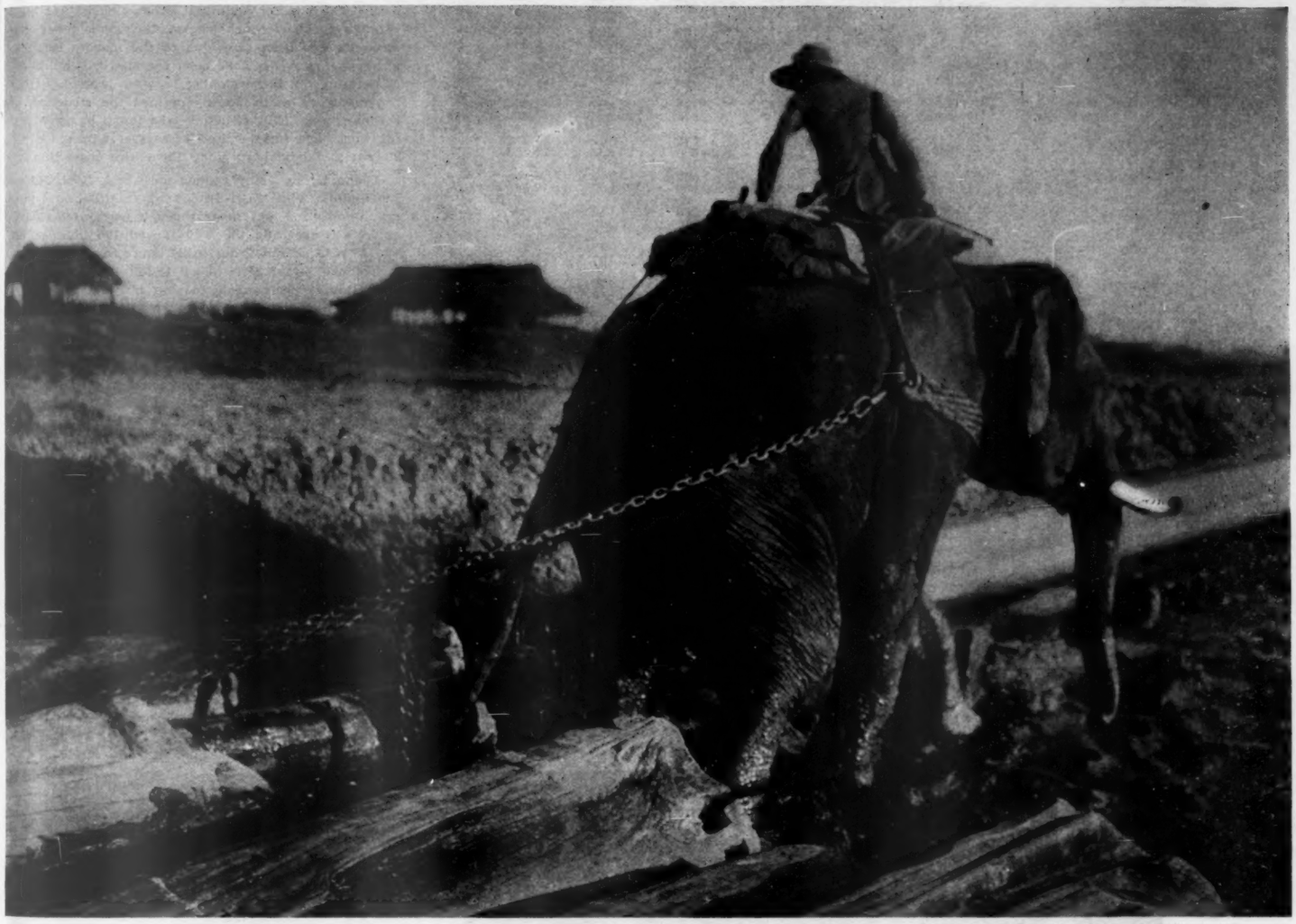
Send for Bulletin 403

The Mark of Quality

FOOTE BROS.
GEAR & MACHINE CORPORATION
5306 So. Western Blvd., Chicago

Direct Factory Representatives
MAX E. LANDRY
204 Terminal Bldg., Oklahoma City,
533 Mayo Bldg., Tulsa, Okla.
T. C. GRAHAM
Box 596, Overton, Texas

Lugs like an Atlas Diesel!



By Ewing Galloway, N. Y.

Atlas Diesel Engines and elephants have a lot in common. When the going is tough, they both throw all they've got into the collar and lug through. You never heard of elephants or Atlas Diesels being stopped.

You'll get slow speed, dependable power, for years and years from both elephants and Atlas Diesel Engines—but from what we've heard about an elephant's daily menu, we know Atlas Diesel power is much more economical.

Of course, an elephant wouldn't be of much use around an oil rig, but when you're coming out of the hole with a long string of tools an Atlas Diesel will buckle down and deliver the same powerful, steady line pull as the elephant shown above. Like elephants, Atlas Diesels come in a wide range of sizes, and are ideal for mud pump and draw-works service.

SEND FOR A COPY OF OUR BULLETIN "ATLAS IMPERIAL DIESELS FOR ALL OIL FIELD SERVICE"

ATLAS IMPERIAL DIESEL ENGINE CO.

OAKLAND, CALIFORNIA · · MATTOON, ILLINOIS

Oil Country Distributors

K. S. RICHARDS · WICHITA · OKLAHOMA CITY · FORT WORTH · HOUSTON

ATLAS IMPERIAL

Louisiana Gulf Coast (Continued)

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Ttl. 6 mos. (bbls.)
QUARANTINE BAY:							
Daily average	..	706	758	905	589	610	
Month	.....	19,768	23,498	27,150	18,259	18,300	106,975
ROANOKE:							
Daily average	4,123	4,614	4,479	4,011	3,771	3,436	
Month	127,813	129,192	138,849	120,330	116,901	103,080	736,165
SORRENTO:							
Daily average	146	144	142	316	463	460	
Month	4,526	4,032	4,402	9,480	14,353	13,800	50,593
STARKS:							
Daily average	641	604	581	594	552	618	
Month	19,871	16,912	18,011	17,820	17,112	18,540	108,266
SOUTH ROANOKE:							
Daily average	90	102	113	130	132	78	
Month	2,790	2,856	3,503	3,900	4,092	2,340	19,481
ST. MARTINSVILLE:							
Daily average	710	670	692	691	695	693	
Month	22,010	18,760	21,452	20,730	21,545	20,790	125,287
SULPHUR:							
Daily average	3,426	2,762	2,432	2,429	2,607	2,852	
Month	106,206	77,336	75,392	72,870	80,817	85,560	498,181
SWEET LAKE:							
Daily average	740	740	772	735	722	712	
Month	22,940	20,720	23,932	22,050	22,382	21,360	133,384
TEPETATE:							
Daily average	5,624	5,658	5,503	5,562	5,742	5,918	
Month	174,344	158,424	170,593	166,860	178,002	177,540	1,025,763
TIMBALIER BAY:							
Daily average	67	409	298	288	40	96	
Month	2,077	11,452	9,238	8,640	1,240	2,880	35,527
VALENTINE:							
Daily average	5,505	5,202	4,909	4,458	4,627	4,771	
Month	170,655	145,656	152,179	133,740	143,437	143,130	888,797
VENICE:							
Daily average	868	687	744	1,121	1,119	1,536	
Month	26,908	19,236	23,064	33,630	34,689	46,080	183,607
VILLA PLATTE:							
Daily average	181	625	743	801	2,297	3,014	
Month	5,611	17,500	23,033	24,030	71,207	90,420	231,801
VINTON:							
Daily average	1,191	1,272	1,244	1,211	939	1,323	
Month	36,921	35,616	38,564	36,330	29,109	39,690	216,230
WAX LAKE (Bateman Lake):							
Daily average	655	395	335	349	196	314	
Month	20,305	11,060	10,385	10,470	6,076	9,420	67,716
RACELAND:							
Daily average	134	689	548	598	489	699	
Month	4,154	19,292	16,988	17,940	15,159	20,970	94,503
WHITE CASTLE:							
Daily average	1,265	1,315	1,602	1,567	1,487	1,640	
Month	39,215	36,820	49,662	47,010	46,097	49,200	268,004
WOODLAWN:							
Daily average	.....	30	60	107	115	247	
Month	.....	840	1,860	3,210	3,565	7,410	16,885
MISCELLANEOUS FIELDS:*							
Daily average	448	403	443	356	222	463	
Month	13,888	11,284	13,709	10,680	6,882	13,890	70,333
First six months 1938	5,362,349	4,918,340	5,535,763	5,405,100	5,487,403	5,510,700	32,219,655
First six months 1937	4,880,436	4,794,688	5,431,753	5,261,381	5,196,656	5,214,750	30,779,664

*Miscellaneous pools and their total production for the first six months were: Bayou Blue, 961 bbls.; Bayou Des Allemands, 16,426 bbls.; Bay St. Elaine, 17,279 bbls.; Big Lake, 12,968 bbls.; Cankton, 5,925 bbls.; Garden Island, 724 bbls.; Lake Hermitage, 5,406 bbls.; South Elton, 5,548 bbls.; Welch, 4,856 bbls.; South Crowley, 240 bbls.; total, 70,333 bbls.

about a mile offshore from Chambers County, is generally looked upon as a major discovery, although the field is in the early stages of development. The discovery well, No. 1 State, was drilled jointly by the Standard Oil Co. of Texas and Salt Dome Oil Corp. on state tract No. 118. The Discorbis was topped at 5,166 feet, Heterostegina at 5,494 feet, Round Marginulina at 5,618 feet, Flat Marginulina at 5,679-5,706 feet, and the Frio at 5,956 feet. Oil sand was cored in the latter section at 5,915-66 feet, and the well was completed at 5,955-6,030 feet, for an initial production of 642 bbls. through a quarter-inch choke. Development of the structure has been slow due to the marine location, although four wells have been completed. Humble Oil & Refining Co. in developing its state lease offsetting the discovery well, recently defined the structure to the northwest. This structure was found by geophysical work, and has resulted in several wildcats being started in inland bays along the entire coast line.

Glenn H. McCarthy opened the Cheek field, Jefferson County, with No. 1 Broussard, C. Hillebrand Survey. Completion was made through perforated casing at 7,718-27 feet and the well flowed 105 bbls. of oil and 18 bbls. of salt water in 24 hours through a 9/64-inch choke. Gravity of the oil tested 40 degrees. Several attempts were made to shut off the salt water, but were unsuccessful, and the well continues to make various quantities of water.

In northern Matagorda County, Pierce Estate opened the McCrosky field with No. 1 fee, in the Nel C. Warren Survey. The well was completed in the Marginulina formation bottomed in a sidetracked hole at 6,626 feet, for an initial production of 3.3 bbls. per hour, flowing through an eighth-inch choke. It is making some salt water. Approximately 4,500 feet southwest Superior Oil Co. No. 1 Paul Kruger extended the field when it flowed 15 bbls. of 40-gravity oil per day through an eighth-inch choke, from perforated casing at 6,689-94 feet.

The Cordele field, Jackson County, was discovered by H. J. Porter and others No. 1 Foust, Peter White Survey, which flowed 177 bbls. daily through a three-sixteenths inch choke with tubing pressure 225 pounds and casing pressure 330 pounds. The well is producing through perforated casing in the Miocene sand at

3 Reasons why the HILL-HUBBELL Process Gives More for Your Money

1 → All Work Done INDOORS
2 → Automatic Thermostatic Control
3 → Positive MECHANICAL Agitation

Insist upon these Features for MAXIMUM Protection

Mechanical Agitator Shown at End of Kettle

It is not by accident that the HILL-HUBBELL Process is pronounced, by eminent engineers, the most efficient method of applying protective coatings. STEEL PIPE, when Coated-and-Wrapped by the HILL-HUBBELL Process, is better protected because no other process offers the many SAFEGUARDS that are necessary for proper protection. That is why engineers who have SEEN this work done INDOORS, at Mills, say it is the most efficient method known today—that is why the HILL-HUBBELL Process is fast replacing the old haphazard method of pipe coating. Play safe! Insist upon features of application that assure MAXIMUM protection. YOU PAY FOR IT—WHY NOT GET IT?

Buy STEEL PIPE
Mill Coated-and-Wrapped
at any of these Mills

Jones & Laughlin Steel Corp.
National Tube Company
Republic Steel Corporation
Spang, Chalfant, Inc.
The Youngstown Sheet & Tube Company

A request on your letterhead will bring a copy of The Book of PIPE PROTECTION, which describes our process in detail.

Schematic Construction of Specification TAX-I

GENERAL PAINT CORPORATION
HILL, HUBBELL & CO. · Division · Cleveland, Ohio
TULSA · SAN FRANCISCO · LOS ANGELES · OAKLAND · PORTLAND · SEATTLE · SPOKANE

2,652-57 feet. This is a geophysical prospect that was farmed-out by the Gulf Oil Corp. One gas well and one oiler have been completed.

Northeast of the Friendswood field, southern Harris County, the discovery of the Clear Lake field by the West Production Co. attracted wide attention and

TEXAS GULF COAST

Summary of Wells Completed First Half of 1938

Field—	Comp.	Prod.	Dry	Gas
Amelia	19	5,264	3	0
Anahuac	26	10,242	2	3
Barbers Hill	2	511	0	0
Batson	5	1,173	1	0
Bay City	3	510	0	0
Blue Ridge	1	0	1	0
Boling	2	642	0	0
Buckeye	1	75	0	0
Call	2	0	2	0
Cedar Bayou	3	27	2	0
Cedar Point	4	1,209	1	0
Cheek	1	198	0	0
Cheek—North	2	0	2	0
Clam Lake	1	600	0	0
Clay Creek	1	0	1	0
Cleveland	2	24	1	0
Clinton	6	1,345	0	1
Clear Lake	3	530	1	0
Conroe	1	552	0	0
Cordelle	3	311	1	0
Cotton Lake	5	1,004	0	0
Damon Mound	1	0	1	0
Danbury	6	230	5	0
Dickinson	40	16,274	3	0
Esperson	2	68	1	0
Eureka	6	3,069	0	0
Fairbanks	34	12,643	4	0
Fannett	1	0	1	0
Five Corners	5	706	0	2
Friendswood	47	25,117	3	0
Garwood	1	0	1	0
Hankamer	4	1,151	1	0
Hardin	42	19,442	1	0
Hastings	104	57,951	2	0
High Island	4	851	0	0
Hitchcock	5	759	3	0
Humble	1	0	1	0
Katy	1	0	0	1
Labelle	1	1,066	0	0
Livingston	1	120	0	0
Lockridge	10	2,102	1	0
Magnet	5	445	0	0
Manvel	9	3,855	1	0
Markham	5	167	4	0
McCrosky	3	555	1	0
Nome	7	1,706	3	1
Old Ocean	6	1,896	0	0
Orange	13	4,214	4	0
Orchard	2	0	2	0
Palacios	2	422	0	0
Pledger	1	0	0	1
Pickett Ridge	4	275	1	0
Pierce Junction	4	1,713	0	2
Port Neches	1	0	1	0
Sandy Point	2	258	0	0
Saratoga	1	0	1	0
Satsuma	2	152	0	0
Seabreeze	5	1,726	0	1
Segno	10	2,625	2	0
Silsbee	6	2,559	1	0
Spindletop	6	1,619	0	0
Spurger	4	1,947	0	0
Thompson	13	2,454	0	1
Tomball	43	13,810	3	6
Turtle Bay	7	2,199	2	0
Van Vleck	5	2,377	0	0
West Columbia	21	10,619	1	0
Withers	15	3,873	0	0
Miscellaneous	60	0	60	0
Total	671	227,232	133	17

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	121	43,147	19	4
February	76	27,297	17	0
March	143	47,366	31	6
April	93	31,011	15	4
May	111	36,220	22	2
June	127	42,191	29	1
Total	671	227,232	133	17
Same period 1937	760	251,265	159	35
Difference	89	24,033	26	18

it is generally believed that a field of major importance has been opened, although accurate details of the completed wells are not available. The discovery well, No. 1 Sowden, J. Lindsey Survey, is reported to have cored a 43-foot oil sand at 5,852-95 feet, but the

(Continued on Page 146)

GULF COAST TEXAS

(Upper District)

Daily Average and Monthly Production in First Six Months of 1938

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Ttl. 6 mos. (bbls.)
AMELIA:							
Daily average	6,255	5,929	5,066	5,162	4,872	4,603	
Month	193,905	156,012	157,046	154,860	151,032	138,090	950,945
ANAHUAC:							
Daily average	8,613	8,020	8,255	8,386	7,837	4,951	
Month	267,003	224,560	255,905	251,580	242,947	148,530	1,390,525
ARRIOLA:							
Daily average	536	494	495	806	680	515	
Month	16,616	13,832	15,345	24,380	21,080	15,450	106,703
BARBERS HILL:							
Daily average	9,744	9,462	10,056	10,043	10,004	9,450	
Month	302,064	264,836	311,746	301,290	310,124	283,500	1,773,560
BATSON:							
Daily average	1,642	1,585	1,434	1,647	1,873	1,537	
Month	50,902	44,380	44,454	49,410	58,063	46,110	293,319
BAY CITY:							
Daily average	891	807	924	1,355	1,115	1,049	
Month	27,621	22,596	28,644	40,650	34,565	31,470	185,546
BIG CREEK:							
Daily average	726	656	670	683	610	629	
Month	22,506	18,368	20,770	20,490	18,910	18,870	119,914
BLUE RIDGE:							
Daily average	723	672	712	648	695	657	
Month	22,413	18,816	22,072	19,440	21,545	19,710	123,996
BOLING:							
Daily average	1,536	1,654	1,598	1,961	1,820	1,574	
Month	47,616	46,312	49,538	58,830	56,420	47,220	305,936
BUCKEYE:							
Daily average	258	245	259	278	241	204	
Month	7,998	6,860	8,029	8,340	7,471	6,120	44,818
CEDAR POINT:							
Daily average	.....	127	181	227	224	436	
Month	.....	3,556	5,611	6,810	6,944	13,080	36,001
CLEVELAND:							
Daily average	395	363	369	366	393	360	
Month	12,245	10,164	11,439	10,980	12,183	10,800	67,811
CLINTON:							
Daily average	44	38	89	164	301	528	
Month	1,364	1,004	2,759	4,920	9,331	15,840	35,218
CONROE:							
Daily average	31,920	30,926	34,777	34,675	33,488	30,949	
Month	989,520	865,928	1,078,087	1,040,250	1,038,128	928,470	5,940,383
COTTON LAKE:							
Daily average	1,340	1,270	1,228	1,323	1,349	1,327	
Month	41,540	35,560	38,068	39,690	41,819	39,810	236,487
DAMON MOUND:							
Daily average	340	316	339	325	321	331	
Month	10,540	8,848	10,509	9,750	9,951	9,930	59,528
DANBURY:							
Daily average	103	104	198	261	202	220	
Month	3,193	2,912	6,138	7,830	6,262	6,600	32,935
DICKINSON:							
Daily average	6,896	6,888	6,280	6,800	6,425	5,691	
Month	213,776	192,864	194,680	204,000	199,175	170,730	1,175,225
ESPERSON:							
Daily average	1,239	1,137	1,393	1,387	1,354	1,210	
Month	38,409	31,836	43,183	41,610	41,974	36,300	233,312
EUREKA:							
Daily average	25	23	91	321	500	737	
Month	775	644	2,821	9,630	15,500	22,110	51,480
FANNETT:							
Daily average	579	581	607	570	527	429	
Month	17,949	16,268	18,817	17,100	16,237	12,870	99,241
FAIRBANKS:							
Daily average	60	87	198	494	862	1,530	
Month	1,860	2,436	6,138	14,820	26,722	45,900	97,876
FRIENDSWOOD:							
Daily average	900	1,262	1,798	2,209	2,339	2,322	
Month	27,900	35,336	55,738	66,270	72,509	69,660	327,413
GOOSE CREEK:							
Daily average	1,689	1,526	1,542	1,643	1,515	1,524	
Month	52,359	42,728	47,802	49,290	46,965	45,720	284,864
HANKAMER:							
Daily average	1,085	1,172	1,218	1,264	1,270	1,354	
Month	33,635	32,816	37,758	37,920	39,370	40,620	222,119
HARDIN:							
Daily average	2,290	2,818	3,602	4,315	4,772	3,429	
Month	70,990	78,904	111,662	129,450	147,932	102,870	641,808
HASTINGS:							
Daily average	19,225	18,071	19,071	19,636	19,169	18,113	
Month	595,975	505,988	591,201	589,080	594,239	543,390	3,419,873
HIGH ISLAND:							
Daily average	2,318	2,112	2,171	2,218	1,536	1,537	
Month	71,858	59,136	67,301	66,540	47,616	46,110	358,561
HITCHCOCK:							
Daily average	190	169	174	172	199	145	
Month	5,890	4,732	5,394	5,160	6,169	4,350	31,695
HULL:							
Daily average	9,031	8,476	8,666	8,200	7,708	7,281	
Month	279,961	137,328	258,646	246,000	238,948	218,430	1,379,313
HUMBLE:							
Daily average	3,420	3,320	3,334	3,786	3,146	3,115	
Month	106,020	92,960	103,354	113,580	97,526	93,450	606,890
KITTRELL:							
Daily average	668	614	612	615	702	630	
Month	20,708	17,192	18,972	18,450	21,762	18,900	115,984
KUBELA:							
Daily average	112	234	217	289	276	250	
Month	3,472	6,552	6,727	8,670	8,556	7,500	41,477

(Continued on Page 146)

GULF COAST NEW DISCOVERIES FIRST HALF OF 1938

Field and county—	Discovery well—	Date completed	No. wells	Initial production:
Fairbanks, Harris	Amerada-Stanolind O. & G. Co. No. 1 Mills	1-15-38	31	24 bbls. per hour; ¼-inch choke.
Cedar Point, Turtle Bay	Standard Oil Co. of Texas et al No. 1 State	2-13-38	4	22 bbls. per hour; ¼-inch choke.
Cheek, Jefferson	Glenn McCarthy No. 1 Broussard	2-26-38	1	105 bbls. oil, 18 bbls. salt water; 9/64-inch choke.
McCrosky, Matagorda	Pierce Estate No. 1 fee	2-26-38	3	3 bbls. per hour, some salt water; ⅛-inch choke.
Cordele, Jackson	H. J. Porter No. 1 Foust	3-23-38	2	177 bbls. per day; ¼-inch choke.
Clear Lake, Harris	West Prod. Co. No. 1 Sowden	4-21-38	2	Unestimated; producing distillate; ⅛-inch choke.

COASTAL LOUISIANA NEW DISCOVERIES FIRST HALF 1938

Field and parish—	Discovery well—	Date completed	No. wells	Initial production:
Woodlawn, Jeff Davis	Union Sulphur Co. No. 1 Calcasieu Natl. Bank	2- 4-38	2	46 bbls. distillate; 29/64-inch choke.
Raceland, Lafourche	Amerada Petroleum Corp. No. 1 South Coast Corp.	1-28-38	1	30 bbls. per hour; ¼-inch choke.
Timbalier Bay, Lafourche	Gulf Oil Corp. No. 3 State	1-28-38	1	304 bbls. per day; ¼-inch choke.
Creole, Gulf of Mexico	Superior Oil Co. et al No. 1 State	3- -38	1	250 bbls. per day; 7/64-inch choke.
Baton Rouge, E. Baton Rge.	Louisiana Crusader Oil No. 1 Duplantier	3-25-38	1	465 bbls. per day; ¼-inch choke.
Bancroft, Beauregard	Republic Prod. Co. No. 1 Lutcher-Moore	5- 5-38	1	50 bbls. distillate per day; ¾-inch choke.
South Crowley, Acadia	Humble Oil & Refining Co. No. 1 Finch	6- 9-38	1	35 bbls. net oil; unestimated amount of salt water; workover.
Dulac, Terrebonne	Fohs Oil Co. No. 1 Buckley-Bourg	6-17-38	1	Distillate producer; various chokes.
Jefferson Island, Iberia	Texas Co. No. 1 Bayless-Jones	6-17-38	1	600 bbls. per day; 10/64-inch choke.

The visions of the pioneers

REED
TOOL JOINTS

34 inspection operations . . . plus
. . . complete metallurgical control
are assurance for

UNIFORMITY
and
DEPENDABILITY

Wherever there is Rotary Drilling

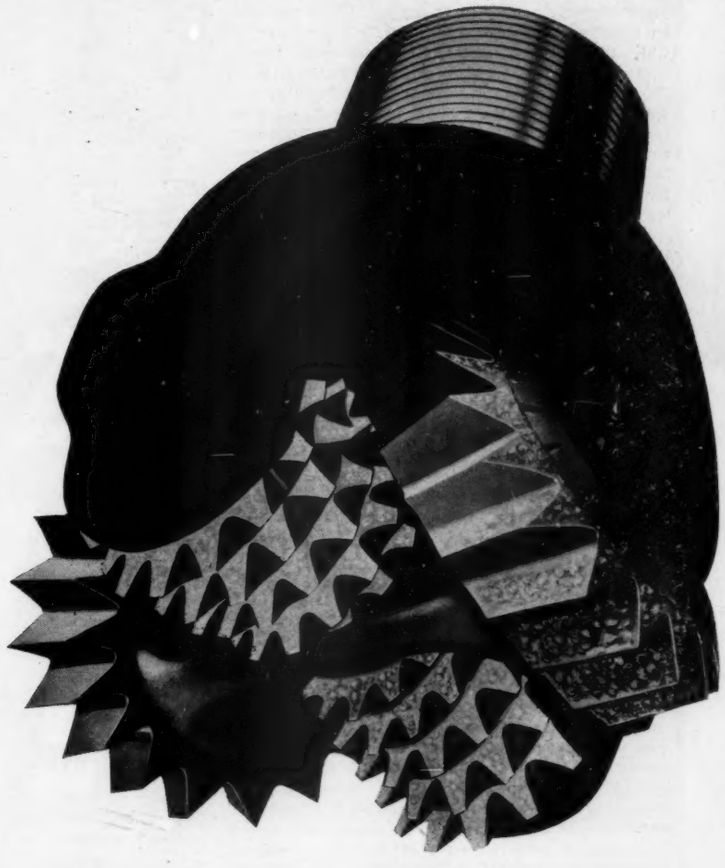
are realities today, because...

IMPROVED EQUIPMENT HAS MADE DEEP DRILLING POSSIBLE

***The* REED ROLLER BIT CO.**

pioneered

ROLLER BEARING ROCK BITS . . . REAMERS . . . FULL HOLE AND INTERNAL FLUSH TOOL JOINTS . . . WIRE LINE CORING EQUIPMENT . . . and NUMEROUS OTHER MODERN DRILLING TOOLS



REED ROCK BITS

with the ball thrust and roller bearing assembly for

MORE HOLE PER BIT with GREATER SAFETY

REED ROLLER BIT CO.

well was completed for a distillate producer through perforated casing at 5,790-5,805 feet. The field is located on the West ranch of several thousand acres. and to date, one dry hole and one oil producer have been completed.

In northern Harris County, two distillate fields were converted into oil pools. At Eureka, just outside of the Houston City limits, Jack Frazier No. 1 Nieman-Vollmer, southeast of distillate production, cored 32 feet of oil sand in the Upper Saline Bayou formation, and was completed through perforated casing at 7,697-7,722 feet. Eureka was discovered in 1934 by C. B. Bunte and others No. 1 Lackner. Seven oil producers have been completed by Frazier, Houston Oil Co., and Means and McGehee.

Deeper drilling in proven fields located along the Conroe Trend was emphasized with the opening of new sands in the Segno and Cleveland fields in Polk and Liberty counties. Gulf Oil Corp. No. 2 Ragan. south of the field proper in I.&G.N. Survey No. 15, flowed 623 bbls. of 34-gravity oil from perforated casing at 8,163-68 feet. in the Cleveland field, Liberty County, the same company opened distillate production from a new sand in No. 21 Kirby Lumber Co., 1,200 feet south of production in the J. Pleasants Survey. The hole was drilled to a total depth of 10,175 feet and was plugged back and completed through perforated casing at 9,090-9,100 feet. Both wells are producing from the Wilcox series, which is not to be confused with the Wilcox of Oklahoma.

In the Bammel gas field, Harris County, north of Houston, H. M. Harrell and others No. 1 Polley, C. G. McLean Survey, about a mile southeast and southwest of two distillate producers, cored saturation in the Upper Saline Bayou formation, and was completed through perforated casing at 6,257-61 feet, for an initial production of 6 bbls. of fluid per hour, of which 60 per cent was oil and the balance salt water.

The first salt dome structure found in the Gulf of Mexico was proven by Humble Oil & Refining Co. with the drilling of No. 1 State, about a mile offshore from Jefferson County. Salt was topped at 2,603 feet and drilled to a total depth of 2,655 feet, where the hole was abandoned. Several locations have been made for the structure and new development is expected to be started before the end of the year.

Two important extensions were marked up for the Friendswood field, Harris County, which has the appearance of becoming one of the Gulf Coast district's outstanding fields. Two outpost tests, about 1½ miles north and east of production, were completed by Humble Oil & Refining Co. With the exception of the Hastings field in Brazoria County, Friendswood holds the distinction of having the thickest sand body of any field on the Gulf Coast.

A deep sand in the Palacious field, Matagorda County, was opened by Sun Oil Co. No. 1 Bayshore Farms, Inc. The well blew out and caught fire, and after it was brought under control, it flowed 250 bbls. of distillate per day through a three-quarters inch choke. It is producing through perforated casing at 9,245-75 feet.

Small Increase Shown In Petroleum Asphalts

Asphalt demand, domestic and foreign, was 2½ per cent larger in 1937 than in 1936, according to the yearly report issued last week by Bureau of Mines. To meet an increase of 87,046 short tons in domestic demand and of 18,254 tons in export demand, petroleum refineries in the United States enlarged their output of asphalt 294,302 tons, from 4,065,622 tons in 1936 to 4,359,924 tons in 1937. At the same time imports of lake asphalt, grahamite, and petroleum asphalt apparently increased 69,785 tons in 1937 over 1936. In consequence stocks of asphalt at refineries were 193,247 tons larger on December 31, 1937, than on December 31, 1936, in contrast with a reduction of 65,540 tons in inventories during 1936.

The indicated domestic demand for petroleum asphalt (including small quantities of Trinidad lake asphalt and Cuban grahamite) increased 2 per cent from 3,962,257 short tons in 1936 to 4,049,303 tons in 1937. For the first seven months of 1937 the tonnage apparently demanded was 15 per cent larger than in the corresponding months of 1935. After a decline in August and a rally in September, the last quarter of 1937 closed with an indicated demand 15 per cent less than in the corresponding quarter of 1936. In terms of the long-time trend from 1908 to 1936 the decline was slight—from 18 per cent above trend in 1936 to 17 per cent above trend in 1937.

Gulf Coast Texas Upper District (Continued)

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Ttl. 6 mos. (bbls.)
LABELLE:							
Daily average	26	14	25	947	1,009	956	
Month	806	392	775	28,410	31,279	28,680	90,342
LIBERTY:							
Daily average	532	489	506	496	495	467	
Month	16,492	13,692	15,686	14,880	15,345	14,010	90,105
LIVINGSTON:							
Daily average	2,214	2,087	2,064	2,044	1,856	1,737	
Month	68,634	58,436	63,984	61,320	57,536	52,110	362,020
LOCKRIDGE:							
Daily average	1,175	1,146	1,335	1,347	1,272	1,187	
Month	36,425	32,088	41,385	40,410	39,432	35,610	225,350
LOVELLS LAKE:							
Daily average	.....	66	162	161	120	121	
Month	.....	1,848	5,022	4,830	3,720	3,630	19,050
LOST LAKE:							
Daily average	126	119	119	118	125	124	
Month	3,906	3,332	3,689	3,540	3,875	3,720	22,062
LOUISE:							
Daily average	1,471	1,379	1,405	1,401	1,275	1,173	
Month	45,601	38,612	43,555	42,030	39,525	35,190	244,513
MAGNET:							
Daily average	851	970	937	872	862	793	
Month	26,381	27,160	29,047	26,160	26,722	23,790	159,260
MANVEL:							
Daily average	8,770	9,014	9,759	9,812	9,460	8,530	
Month	271,870	252,392	302,529	294,360	293,260	255,900	1,670,311
MARKHAM:							
Daily average	1,614	1,754	1,658	1,671	1,526	1,429	
Month	50,034	49,112	51,398	50,130	46,306	42,870	289,850
MAURITZ:							
Daily average	188	154	156	156	138	121	
Month	5,828	4,312	4,836	4,680	4,278	3,630	27,564
MYKAWA:							
Daily average	1,615	1,483	1,445	1,344	1,091	1,053	
Month	50,065	41,524	44,795	40,320	33,821	31,590	242,115
NOME:							
Daily average	1,447	1,375	1,459	1,468	1,446	1,421	
Month	44,857	38,500	45,229	44,040	44,826	42,630	260,082
NORTH CHEEK:							
Daily average	183	144	109	196	127	74	
Month	5,673	4,032	3,379	5,880	3,937	2,220	25,121
OLD OCEAN:							
Daily average	2,715	3,001	2,998	3,740	3,676	4,052	
Month	84,165	84,028	92,938	112,200	113,956	121,560	608,847
ORANGE:							
Daily average	756	874	1,042	1,246	1,322	1,325	
Month	23,436	24,472	32,302	37,380	40,982	39,750	198,322
ORCHARD:							
Daily average	369	390	426	434	273	375	
Month	11,439	10,920	13,206	13,020	8,463	11,250	68,298
PALACIOS:							
Daily average	335	356	129	153	130	93	
Month	10,385	9,968	3,899	4,590	4,030	2,790	35,662
PICKETT RIDGE:							
Daily average	1,228	1,140	1,129	1,095	1,067	1,691	
Month	38,068	31,920	34,999	32,850	33,077	50,730	221,644
PIERCE JUNCTION:							
Daily average	3,302	3,120	3,170	2,970	2,997	3,214	
Month	102,362	87,360	98,270	89,100	92,907	96,420	566,419
PORT NECHES:							
Daily average	1,329	1,234	1,264	1,279	1,121	1,003	
Month	41,199	34,552	39,184	38,370	34,751	30,090	218,146
RACCOON BEND:							
Daily average	3,859	3,551	3,605	3,585	3,226	2,969	
Month	119,629	99,428	111,755	107,550	100,006	89,070	627,438
SANDY POINT:							
Daily average	267	248	328	339	410	259	
Month	8,277	6,944	10.168	10,170	12,710	7,770	56,039
SARATOGA:							
Daily average	947	909	798	882	841	863	
Month	29,357	25,452	24,738	26,460	26,071	25,890	157,968
SATSUMA:							
Daily average	351	311	321	350	406	375	
Month	10,881	8,708	9,951	10,500	12,586	11,250	63,876
SEABREEZE:							
Daily average	900	470	501	226	517	545	
Month	27,900	13,160	15,531	6,780	16,027	16,350	95,748
SEGNO:							
Daily average	1,765	1,702	1,800	1,822	1,806	1,699	
Month	54,715	47,656	55,800	54,660	55,986	50,970	319,787
SILSBEE:							
Daily average	1,655	1,547	1,657	1,685	1,603	1,372	
Month	51,305	43,316	51,367	50,550	49,693	41,160	287,391
SOUR LAKE:							
Daily average	1,356	1,258	1,202	1,261	1,200	1,179	
Month	42,036	35,224	37,262	37,830	37,200	35,370	224,922
SOUTH HOUSTON:							
Daily average	3,915	3,325	3,342	3,404	3,238	3,031	
Month	121,365	93,100	103,602	102,120	100,378	90,930	611,495
SPINDLETOP:							
Daily average	1,896	1,853	2,189	2,250	2,029	2,010	
Month	58,776	51,884	67,859	67,500	62,899	60,300	369,218
SPURGER:							
Daily average	551	616	698	758	718	674	
Month	17,081	17,248	20,638	22,740	22,258	20,220	120,185
SUGARLAND:							
Daily average	2,771	3,042	3,550	3,533	3,201	2,911	
Month	85,901	85,176	110,050	105,990	99,231	87,330	573,678
THOMPSON:							
Daily average	10,867	10,537	10,717	10,929	10,031	9,131	
Month	336,877	295,036	332,227	327,870	310,961	273,930	1,876,901
TOMBALL:							
Daily average	7,865	6,980	7,254	7,354	6,607	6,136	
Month	243,815	195,440	224,874	220,620	204,817	184,080	1,273,646
TURTLE BAY:							
Daily average	1,148	1,047	1,001	1,125	1,095	1,016	
Month	35,588	29,316	31,031	33,750	33,945	30,480	194,110
VAN VLECK:							
Daily average	1,549	2,076	2,165	2,274	1,941	2,208	
Month	48,019	58,128	67,115	68,220	60,171	66,240	367,893
WEST COLUMBIA:							
Daily average	3,573	3.807	4,227	4,866	4,210	4,415	
Month	110,763	106,596	131,037	145,980	130,510	132,450	757,336
WITHERS:							
Daily average	1,706	1,595	1,774	1,910	2,320	2,551	
Month	52,886	44,660	54,994	57,300	71,920	76,530	358,290
WILLOW SLOUGH:							
Daily average	.....	111	167	219	167	159	
Month	.....	3,108	5,177	6,570	5,177	4,770	24,802
CLAY CREEK:							
Daily average	531	511	546	608	537	488	
Month	16,461	14,308	16,926	18,240	16,647	14,640	97,222
MISCELLANEOUS:							
Daily average	501	444	457	449	447	428	
Month	15,531	12,432	14,167	13,470	13,857	12,840	82,297
First six months 1938	5,983,372	5,137,236	6,102,730	6,150,440	6,083,053	5,519,250	34,976,081
First six months 1937	5,464,308	5,285,312	6,395,286	5,977,310	6,437,931	6,165,946	35,726,093

Miscellaneous pools and their total production in the six months' period were: Ace, 11,529 bbls.; Allen, 1,902 bbls.; Bammel, 1,001 bbls.; Brenham, 4,877 bbls.; Brookshire, 1,164 bbls.; Call, 2,950 bbls.; Cedar Bayou, 682 bbls.; Dibolls, 752 bbls.; Edna, 1,536 bbls.; Clam Lake, 16,213 bbls.; Ganada, 5,923 bbls.; Garwood, 248 bbls.; Green Lake, 2,887 bbls.; Huntington, 3,009 bbls.; Katy, 541 bbls.; McCrocky, 9,088 bbls.; Nash, 869 bbls.; North Dayton, 17,126 bbls. Total, 82,297 bbls.

TO GET THE MAXIMUM...

...FUEL POWER MILEAGE

In Modern Motor Fuel Leading Refiners Blend with

STABILIZED NATURAL GASOLINE

WARREN PETROLEUM CORPORATION
JUST NATURAL GASOLINE
Tulsa, Oklahoma

The movement of the world's motorized freight and passenger traffic calls for a modern motor fuel — a gasoline that is geared to the needs of today's highway and travel conditions — a knockless, quick-starting, carbon-free, uniform product. The proper blend of Stabilized Natural Gasoline insures these specifications — guarantees a gasoline of increased volatility and high octane rating.

Warren Petroleum Corporation, with the entire production of a large number of plants, large modern storage and adequate rail and marine shipping facilities, is the logical source of supply for Stabilized Natural Gasoline. Warren manufactures and sells only Natural Gasoline.

WARREN PETROLEUM CORPORATION
Tulsa, Oklahoma
MANUFACTURERS, EXPORTERS AND MARKETERS
Export Terminals: Corpus Christi, Port Arthur and Nonsworthy, Houston, Texas; Harcus Hook, Pa.

Canada Increases Output

By VICTOR LAURISTON

Official figures for the first four months of 1938 showed a gain of nearly 200 per cent in Canadian petroleum production over the same period last year, due entirely to the new crude development in Turner Valley. Comparative figures for the various provinces follow:

	1937 Jan.-April (bbls.)	1938 Jan.-April (bbls.)
New Brunswick	2,735	3,505
Ontario	53,988	51,424
Alberta	602,932	1,760,756
Total	659,655	1,815,685

Natural Gas Production

Natural gas production marketed from all Canadian fields for the same period showed a gain of approximately 10 per cent over the 1937 period. The four-month production in 1938 totaled 14,140,495,000 feet against 1,276,000,000 feet in the four months of 1937.

Turner Valley

The outstanding feature of the first six months of 1938 has been the response of the Turner Valley west flank crude area to continued drilling. Some 19 wells have been completed, of which 18 were crude producers, with one dry hole. These completions brought the Turner Valley potential to 48,687 bbls. by the end of June; creating a marketing problem which has necessitated fairly drastic proration. Turner Valley crude is now marketed to refineries as far east as Winnipeg, and its refined products as far east as Rainy River, Ontario. Refining facilities in Alberta will be increased this year by a new 4,500-bbl. refinery to be built by British American Oil Co. at East Calgary, as well as a number of smaller plants. Meanwhile, Alberta operators are negotiating with the eastern refiners and the transcontinental railroads with a view to securing a lower freight rate to permit economic marketing of Turner Valley crude in Ontario and possibly Quebec. Canada's crude petroleum requirements approximate 110,000 bbls. a day; but the major refining outlets are in the eastern provinces.

Several important completions have marked the first half of 1938. In North Turner Valley, Royalite Oil Co. No. 29 Turner Basin, LSD 7, section 27-20-3w5, definitely proved the crude possibilities of the west flank some 11 miles northwest of the South Turner Valley crude area.

In the west-central area, after the drilling of several unsatisfactory wells north and east, Vulcan-Brown Petroleums No. 1, LSD 10, section 5-19-2w5, finished as the largest well in the field with 4,528 bbls. open flow and 3,018 bbls. rated potential. It opened a promising area extending northwest of the most northerly previous crude production.

Farther south, Royalite Oil Co. No. 30, LSD 11, section 32-18-2w5, extended the proven field a quarter mile west. The southwestern area, centering in section 17-18-2w5, was marked by some very large producers.

On the other hand, National Petroleum Corp. No. 2, LSD 14, section 9-18-2w5, the farthest south test to get the Madison, after encountering a small crude production in the upper lime drilled into a repetition of the Blairmore formation. This faulting has slowed down development to the south, though it is not believed to continue much farther west.

In the main area, outlying wells to the west and south of the earlier producers have been among the largest producers.

The following is a summary of Turner Valley completions in 1938 up to June 30:

Well and location—	Depth	Open flow	Potential
Royalite No. 29			
LSD 7, sec. 27-20-3w5	6,920	....	800
Brown Oil Corp. No. 3			
LSD 15, sec. 19-19-2w5	6,771	(dry hole)	
Vulcan Brown No. 1			
LSD 10, sec. 5-19-2w5	7,430	4,528	3,018
Royalite No. 28			
LSD 16, sec 32-18-2w5	6,949	1,056	704
Royalite No. 30			
LSD 11, sec. 32-18-2w5	7,690	2,227	1,518
West Turner No. 1			
LSD 2, sec. 32-18-2w5	7,274	3,418	2,321
West Flank No. 2			
LSD 1, sec. 32-18-2w5	6,827	1,200	800
Globe No. 1			
LSD 7, sec. 29-18-2w5	7,403	(est.)	500
Davies No. 1			
LSD 2, sec. 29-18-2w5	7,375	....	1,065
Sunburst No. 1			
N½ LSD 1, sec. 29-18-2w5	7,157	900	589
Model-Spooner No. 2			
LSD 1, sec. 29-18-2w5	7,185	1,536	1,213
Richland No. 2			
LSD 5, sec. 28-18-2w5	6,950	....	60
Barsac No. 1			
LSD 12, sec. 21-18-2w5	6,866	....	232
Brown No. 4			
LSD 4, sec. 21-18-2w5	6,721	....	913
Spy Hill No. 1			
LSD 16, sec. 20-18-2w5	7,058	....	138
United-Brown No. 5			
LSD 1, sec. 20-18-2w5	7,303	....	789
Sundance No. 1			
LSD 9, sec. 17-18-2w5	7,410	3,858	2,572
Frontier No. 1			
LSD 11, sec. 16-18-2w5	7,396	....	2,462
National No. 2			
LSD 14, sec. 9-18-2w5	7,705	....	400

Methods of taking official potentials have been changed from time to time, the most recent being to allot a temporary potential on the first three days' production, operate 10 days on the proration quota of this and fix the permanent potential at two-thirds the eleventh day open flow.

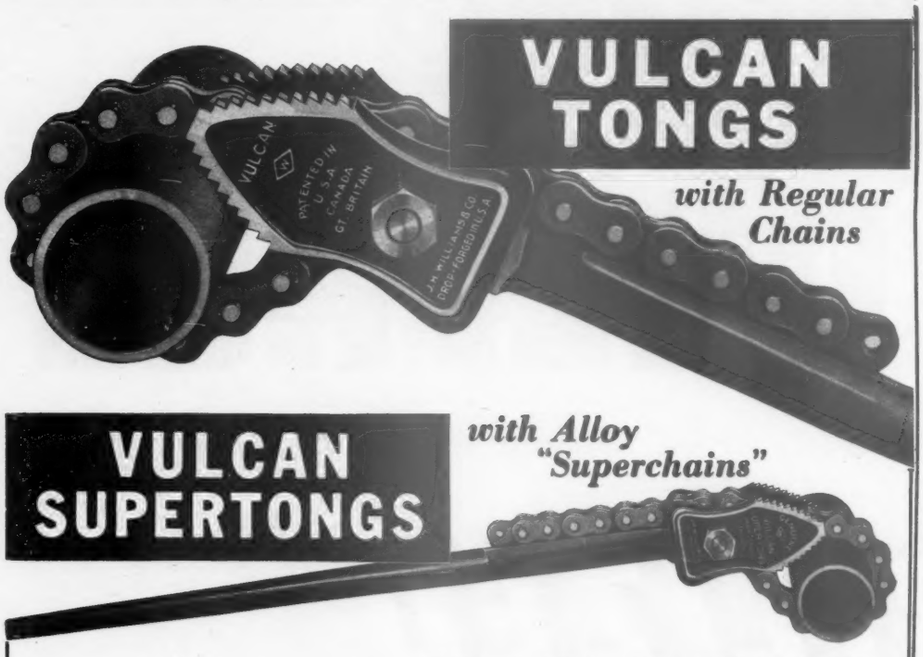
Alberta Fields

In Alberta, Turner Valley accounted for the major part of the increased petroleum production; other areas showing slight gains. The Turner Valley limestone production continued to increase in the face of proration varying from 30 to 44 per cent. The monthly pipe line runs for the early months of 1937 and 1938 compare as follows:

	1937 (bbls.)	1938 (bbls.)
January	101,856	395,639
February	115,818	361,955
March	133,216	406,644
April	149,467	379,213
May	148,066	448,363
June	162,071	*450,000
Total	810,494	2,441,814

*Estimated.

(Continued on Page 158)



VULCAN TONGS

with Regular Chains

VULCAN SUPERTONGS

with Alloy "Superchains"

"VULCAN" TONGS

Wherever you go in the oil fields you find "Vulcans" the outstanding favorite. There are more "Vulcans" in use than all other makes combined. Every part of this famous tool is built to bear its share of the load. Chains are proof-tested and certified. Jaws and Handle are tough drop-forgings; Through-Bolt is extra heavy and is equipped with a U. S. Standard Nut to simplify replacement. Nine sizes, with either Flat Link or Cable Chain, for pipe 1/8 to 18 inches.

"VULCAN SUPERTONGS"

A new Williams' "VULCAN"—a "SUPERTONG" in every sense of the word. Same design and structural features as the famous "Vulcan" Tongs which have been oil field favorites for more than 40 years. BUT—the new "SUPERTONG" is forged from Alloy and high-tensile steel and heat-treated—providing at least *50% greater strength* than regular "Vulcan" Tongs of corresponding size and weight. Finished in grey enamel with blue jaw panel and bright faced jaw edges. Eight sizes, for pipe 1/8 to 18 inches.

J. H. WILLIAMS & CO.
275 Spring Street **New York**

Headquarters for: Drop-Forged Wrenches (Carbon and Alloy), Detachable Socket Wrenches, Reversible Ratchet Wrenches, "C" Clamps, Lathe Dogs, Tool Holders, Eye Bolts, Hoist Hooks, Thumb Nuts and Screws, Chain Pipe Tongs and Vises, etc.

WILLIAMS
SUPERIOR DROP-FORGED TOOLS

Semi-Annual Review

ELEVEN POOL DISCOVERIES IN PERMIAN AREA; MANY EXTENSIONS

By MITCHELL TUCKER

The West Texas district during the first six months of 1938 was featured by extensive wildcatting which opened up many new producing spots, some of which have proven to be new fields and others connecting links or extensions to present known fields.

Out of the 1,220 completions made in the district during the first half of 1938, 1,036 were oil wells having an aggregate initial production of 854,727 bbls. There were 174 dry holes drilled, and 10 gas wells completed.

The greatest trend of wildcat activity was in the North Basin territory, where operators have been attempting to discover new fields along the northern trend of the east platform of the basin. As a result of this exploration, there were 12 new producing areas discovered in West Texas, eight of these being in the northern trend. Since some of these "spots" are less than 5 miles from established fields whose productive limits are not yet defined, later exploration may prove them to be extensions rather than new-pool discoveries. Several of the more important of these discoveries include areas in Andrews, Crockett, Ector, Gains, Yoakum and Pecos counties.

Pool Developments

Perhaps the most important development in the district was the widespread extensions made to the Wasson pool of Gaines and Yoakum counties. At the start of 1938 the Wasson field in Gaines County and the Denver pool of Yoakum County were several miles apart, however, they are now established as one field, known as Wasson. The linking of these two fields was a continuous process, accomplished by the drilling of several link wells. On February 1 the area was thought to be on one large structure of about 18,000 acres. By the end of March this had been increased to 25,000 acres, and as the year passed the half-way mark the area has increased to an estimated 30,000 acres. Furthermore, there is some indication that the Bennett pool, 5 miles to the northeast, may be on the same structure. Should later drilling prove this to be the case, many additional acres would be included in what is now one of the largest single fields in West Texas.

Early in February the Jordon and Waddell fields in northern Crane County were linked by Gulf Oil Corp. No. 11 Henderson, which came in for 40 bbls. of oil per hour. Much territory was added to the two fields by this union.

Another point of much activity over the past half year was Ector County. From the eight fields in that county came the greatest number of weekly well completions in the district. A total of 345 producing wells were added to the Goldsmith, Harper, Foster, North Cowden and other Ector County fields during the six months.

Ordovician Activity

Thus far in 1938 the West Texas area has received an increasing amount of deep Ordovician exploration. Stimulated by Ordovician production in the Sand Hills and Big Lake regions, continued wildcatting has been

(Continued on Page 155)

WEST TEXAS

Daily Average and Monthly Production in First Six Months of 1938

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Ttl. 6 mos. (bbls.)
BENNETT:							
Daily average	926	1,178	1,682	2,273	2,733	2,727	
Month	28,703	32,985	52,130	68,181	84,734	81,818	348,551
BIG LAKE:							
Daily average	7,206	6,844	6,819	6,848	6,258	6,265	
Month	223,379	191,632	211,391	205,426	194,005	187,961	1,213,794
CHURCH-FIELDS:							
Daily average	6,255	5,737	5,753	5,876	4,915	4,918	
Month	193,892	160,624	178,357	174,788	152,352	147,539	1,007,552
COWDEN, CRANE:							
Daily average	1,703	1,688	1,692	1,808	1,659	1,662	
Month	52,801	47,254	52,464	54,249	51,426	49.856	308,050
COWDEN (NORTH):							
Daily average	6,441	6,028	6,334	6,175	5,506	5,494	
Month	199,658	168,795	196,364	185,253	170,695	164,833	1,085,598
COWDEN (SOUTH):							
Daily average	293	292	299	232	261	261	
Month	9,083	8,171	9,259	6,949	8,082	7,826	49,370
DEEP ROCK:							
Daily average	230	214	211	204	179	189	
Month	7,143	5,980	6,537	6,120	5,555	5,667	37,002
DUGGAN:							
Daily average	158	247	263	388	392	385	
Month	4,898	6,916	8,143	11,647	12,140	11,552	55,296
EAVES:							
Daily average	253	315	215	306	309	307	
Month	7,851	8,830	6,656	9,191	9,575	9,211	51,314
EMPEROR:							
Daily average	1,267	1,128	1,278	1,311	1,199	1,210	
Month	39,287	31,577	39,604	39,315	37,171	36,303	223,257
ESTES:							
Daily average	7,219	6,751	7,036	7,240	6,385	6,374	
Month	223,775	189,019	218,128	217,213	197,933	191,217	1,237,285
FOSTER:							
Daily average	3,720	3,689	4,213	4,414	4,208	4,216	
Month	115,305	103,298	130,611	132,407	130,433	126,480	738,534
FUHRMAN:							
Daily average	1,083	1,069	1,321	1,361	1,319	1,321	
Month	33,573	29,939	40,949	40.831	40,874	39,636	225,802
GOLDSMITH:							
Daily average	11,370	10,945	11,646	12,378	11,266	11,116	
Month	352,468	306,460	361,018	371,345	349,256	333,488	2,074,035
GRAYSON:							
Daily average	137	137	136	142	104	106	
Month	4,256	3,829	4,209	4,269	3,233	3,114	22,910
GULF-McELROY:							
Daily average	4,097	3,988	3,973	4.151	3,589	3,606	
Month	127,021	111,651	123,158	124,529	111,244	108,174	705,777
HALLEY:							
Daily average	531	478	494	496	422	416	
Month	16,457	13,395	15,319	14,891	13,068	12,471	85,601
HARPER:							
Daily average	2,480	3,637	4,955	7,114	8,438	8,707	
Month	76,866	101,832	153,599	213,422	261,564	261,221	1,068,504
HENDERSON:							
Daily average	3,120	2,842	3,046	3.024	2,637	2,611	
Month	96,708	79,575	94,435	90,705	81,733	78,333	521,489
HENDRICK:							
Daily average	10,823	10,983	11,463	11,370	11,646	11,410	
Month	335,501	307,528	355,354	341,011	361,027	342,300	2,042,721
HOWARD-GLASSCOCK:							
Daily average	13,714	14,710	15,093	15,098	13,269	13,276	
Month	425,135	411,880	467,880	452,954	411,353	398,287	2,567,489
HURDLE:							
Daily average	134	136	129	128	122	124	
Month	4,158	3,794	4,006	3,827	3,783	3,716	23,284
IATAN-EAST HOWARD:							
Daily average	6,615	6,393	6.504	6,453	5,874	5,869	
Month	205,074	179,000	201,621	193,581	182,088	176,068	1,137,432
JORDAN:							
Daily average	1,092	1,186	1,387	1,578	1,553	1,540	
Month	33,845	33,194	43,009	47,326	48,155	46,207	251,736
KERMIT:							
Daily average	16,699	15,990	16,354	16 627	14.565	14,602	
Month	517,682	447,720	506,974	498,813	451,518	438,072	2,860,779
KEYSTONE:							
Daily average	2,460	2,447	2,536	2,562	2,434	2,418	
Month	76,273	68,521	78,605	76,868	75,447	72,544	448,258
LECK:							
Daily average	477	480	532	482	361	372	
Month	14,800	13,433	16,505	14,473	11,187	11,157	81,555
MASON:							
Daily average	333	400	398	399	349	344	
Month	10,318	11,210	12,335	11,957	10,802	10,325	66,947
MASTERSON:							
Daily average	596	668	605	616	596	590	
Month	18,487	18,697	18,741	18 476	18.488	17,706	110,595

(Continued on Page 155)

NEW DISCOVERIES IN WEST TEXAS

First Half 1938

Location; county—	Discovery well—	Date	Depth	Production—
Just S of Pecos River; Pecos	Hoss & Downey No. 1 Cities Service-Cordez	January	1,974-2,044	150 bbls. per day
NW part of county; Crockett	Choate & Hogan No. 1 University	April	1,538	104 bbls. per day
Central part of county; Yoakum	Gulf Oil Corp. No. 1 Dixon	April	5.491-5,521	71 bbls. in 19 hours
3½ miles N of Church-Fields-McElroy field; Crane	Magnolia Petroleum Co. No. 1 University	May	3,264-3,325	32 bbls. per day
4 miles W of Yates pool; Pecos	Cardinal Oil Co. No. 1-36 White-Baker	.....	1,639	35 bbls. in 24 hours
7 miles SE of Hobbs pool; Gaines	Eastland Oil Co. No. 1 Dunbar	May	4,622-40	Unofficially gauged
4 miles NW of Seminole field; Gaines	Frick-Osage Drilling Co. No. 1 Atlantic-Riley	May	5,068-98	135 bbls. per day
4½ miles NW of Denver field; Yoakum	Shell Petroleum Co. No. 1 D. Roberts	May	5,100	566 bbls. per day
Between Dugan and Slaughter fields; Cochran	Texas Co. No. 1 Mallet Land & Cattle Co.	June	5,085	Ungauged
4 miles N of North Cowden field; Ector	Rogers & Rogers No. 1 O. B. Holt	June	4.470-4.541	253 bbls. per day
Andrews County	R. R. Rhodes & Tompkins No. 1 E. Cowden	June	4,160-4,220	125 bbls. per day

Why MISSION OUT-LAST and THEM ALL IN COMPETITIVE Advanced

Superior Metallurgy

● Tougher, longer-lasting steel results from painstaking thoroughness in heat treating in Mission's own modern furnaces; electric thermocouple controlled; assuring **uniform heat treating.**

Precision Machining

● . . . The result of modern machines designed and equipped for specialized work, manned by skilled operators . . . **makes for easy and accurate assembly, thus giving you trouble-free service on the lease.**

Exacting Inspection Control

● Heat treatment inspection using both Brinell and Rockwell hardness testing machines . . . inspection at different stages of machining . . . final inspection during factory assembly account for the high-quality steel which **insures the long and faithful service** for which Mission Products are famous . . . and the accurate machining which **insures time-saving interchangeability on the lease.**

MISSION ROTARY SLIPS—Model 36

Famous "Rolling Dog" principle . . .
speeds up round trips . . . saves pipe.

MISSION TUBING SPIDERS
Spool Type

Embody "Rolling Dog" principle and other excellent features of Mission Rotary Slips.

A compact, self-contained unit that is always ready for instant operation.

Sold Through Supply Stores Everywhere!

carried on, thus far with little success. During the first half of 1938, 13 wildcats were started to the Ordovician horizon in practically all of the South Basin counties. Of this number, nine were abandoned as dry, and the others, one each in Pecos, Brewster, Schleicher and Sutton counties, are still drilling.

WEST TEXAS

Summary of Wells Completed First Half of 1938

County—	Comp.	Prod.	Dry	Gas
Andrews	33	19,661	7	0
Bailey	1	0	1	0
Borden	1	0	1	0
Brewster	1	0	1	0
Cochran	6	1,396	1	0
Coke	1	0	1	0
Crane	57	61,311	7	1
Crockett	16	1,447	4	0
Culberson	4	0	4	0
Dawson	2	0	2	0
Ector	345	377,213	1	0
Edwards	3	0	3	0
Fisher	26	6,514	9	0
Gaines	23	14,566	6	0
Garza	2	0	2	0
Glasscock	2	1,054	0	0
Hockley	5	3,103	0	0
Howard	79	57,558	8	0
Irion	1	0	1	0
Jones	110	31,147	48	0
Loving	6	849	1	0
Mitchell	4	227	1	0
Menard	2	0	2	0
McCulloch	2	25	1	0
Pecos	62	10,767	17	5
Reeves	3	0	3	0
Runnels	2	0	2	0
Schleicher	1	0	1	0
Scurry	1	10	0	0
Sterling	2	0	2	0
Sutton	1	0	1	0
Taylor	6	8	5	0
Terrell	1	0	1	0
Terry	3	0	3	0
Tom Green	1	0	1	0
Upton	93	54,474	12	0
Val Verde	3	25	0	0
Ward	113	79,029	8	2
Winkler	128	83,449	1	2
Yoakum	68	50,894	5	0
Total	1,220	854,727	174	10

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	207	122,513	24	0
February	192	120,585	37	3
March	224	158,821	26	1
April	187	127,546	27	3
May	209	158,042	33	1
June	201	167,220	27	2
Total	1,220	854,727	174	10
Same period 1937	1,341	1,043,888	127	5
Difference	121	189,161	47	5

PANHANDLE DISTRICT

In January, 1938, Sherman County, in the Texas Panhandle, received a new gas field when Indian Territory Illuminating Oil Co. tapped a sweet gas reserve. After drilling deeper and testing this well, the company's No. 1 M. C. Davis was completed on June 9 for an initial gauge of 1,500,000 feet, rock pressure 435 pounds. Gas

PANHANDLE DISTRICT

Summary of Wells Completed First Half of 1938

County—	Comp.	Prod.	Dry	Gas
Armstrong	1	0	1	0
Carson	38	8,825	0	13
Cottle	2	0	2	0
Collingsworth	2	0	2	0
Dallam	1	0	1	0
Dickens	1	0	1	0
Gray	107	45,786	0	10
Hansford	1	0	1	0
Hutchinson	135	70,044	1	9
Lamb	1	0	1	0
Moore	11	780	0	9
Parmer	1	0	1	0
Ochiltree	1	0	0	1
Potter	2	0	0	2
Roberts	1	0	1	0
Sherman	2	0	1	1
Wheeler	18	559	1	10
Total	325	125,994	14	55

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	72	27,241	5	17
February	53	16,972	3	9
March	55	21,085	2	10
April	28	14,183	1	0
May	57	25,263	1	10
June	60	21,250	2	9
Total first half 1938	325	125,994	14	55
Total first half 1937	335	125,292	13	66
Difference	10	772	1	11

was logged at various points from 2,705 to 3,116 feet, totaling 31,000,000 feet. Difficulties were encountered while cleaning out the hole, and it was necessary to complete the well at a depth of 2,800 feet. The gas pay from 2,705 to 2,800 feet is now the only section open to production. The new area promises to be of great importance for it is located between the huge gas reservoir in

(Continued on Page 158)

NEW DISCOVERIES PANHANDLE AREA FIRST HALF 1938

Field—	County	Discovery well	Date	Depth	Production
SW part of county	Gray	Lone Star Gas Co. No. 1 Fowler	April	2,500	25,000,000 ft. gas
SW part of county	Sherman	Indian Territory Illuminating Oil Co. No. 1 Davis	January	2,705-3,116	30,000,000 ft. gas
6 mi. SW of Pampa field	Carson	Northern Natural Gas Co. No. 1 J. A. Daner	June	.....	484 bbls. day.

TEXAS PANHANDLE

Daily Average and Monthly Production in First Six Months of 1938

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Ttl. 6 mos. (bbls.)
GRAY COUNTY:							
Daily average	30,616	29,010	30,719	30,031	27,262	28,627	
Month	949,101	812,282	952,292	900,933	845,116	858,810	5,318,534
HUTCHINSON COUNTY:							
Daily average	22,711	20,109	22,760	22,995	19,537	20,325	
Month	704,037	563,046	705,756	689,846	605,653	609,757	3,878,095
CARSON COUNTY:							
Daily average	6,317	5,981	6,760	6,810	6,213	5,812	
Month	195,832	167,472	190,957	204,299	192,611	174,371	1,125,542
MOORE COUNTY:							
Daily average	1,349	1,251	1,329	1,274	1,171	1,183	
Month	41,815	35,042	41,198	38,224	36,305	35,494	228,078
WHEELER COUNTY:							
Daily average	6,107	5,837	6,309	6,011	5,915	5,862	
Month	189,310	163,440	195,579	180,332	183,365	175,866	1,087,892
Daily average	67,100	62,188	67,283	67,121	60,098	61,810	64,299
First six months 1938	2,080,095	1,741,282	2,085,782	2,013,634	1,863,050	1,854,298	11,638,141
First six months 1937	2,092,717	2,079,000	2,366,695	2,283,120	2,602,062	2,576,445	14,000,039
First six months 1936	1,918,900	1,702,039	1,908,856	1,855,770	2,009,203	1,841,880	11,236,648
First six months 1935	1,833,743	1,725,864	1,974,173	1,801,110	1,893,790	1,796,910	11,025,590
First six months 1934	1,310,432	1,386,644	1,714,982	1,656,600	1,805,471	1,716,090	9,590,219

WEST TEXAS (Continued)

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Ttl. 6 mos. (bbls.)
McCAMEY:							
Daily average	13,149	14,636	14,903	14,888	13,465	13,456	
Month	407,616	409,800	461,994	446,636	417,424	403,691	2,547,161
McMILLAN:							
Daily average	106	115	106	106	109	102	
Month	3,289	3,228	3,288	3,165	3,365	3,060	19,395
McCLINTIC:							
Daily average	891	845	900	966	841	849	
Month	27,633	23,669	27,889	28,988	26 064	25,470	159,713
MEANS:							
Daily average	1,835	1,728	1.807	1,889	1.703	1,801	
Month	56,896	48,392	56,016	56,658	52 789	54,030	324,781
NETTERVILLE:							
Daily average	231	272	252	252	234	231	
Month	7,152	7,622	7.801	7,566	7,2°0	6,927	44,318
PAYTON:							
Daily average	67	148	180	273	479	480	
Month	2,080	4,134	5,582	8,205	14,855	14,412	49,268
PECOS VALLEY:							
Daily average	462	509	541	536	676	661	
Month	14,318	14,242	16,771	16 083	20,957	19,836	102,207
PENWELL:							
Daily average	3,872	3,542	3 642	3,566	3,044	3,101	
Month	120,021	99,187	112,913	106.993	94,377	93,019	626,510
SAND HILLS:							
Daily average	1,297	1,215	1,325	1,287	1,156	1,149	
Month	40,200	34,012	41,074	38,611	35,827	34,470	224,194
SCARBOROUGH:							
Daily average	1,640	1,550	1,534	1,572	1,392	1,404	
Month	50,826	43,396	47,543	47,179	43,146	42,126	274,216
SEALEY:							
Daily average	435	408	417	392	350	357	
Month	13,484	11,437	12,929	11.751	10,851	10,699	71,151
SEMINOLE:							
Daily average	184	311	351	362	343	352	
Month	5,718	8,716	10.888	10,852	10,639	10,560	57,373
SHIPLEY:							
Daily average	1,412	1,283	1,365	1,392	1,216	1,212	
Month	43,779	35,932	42.324	41,758	37,683	36,372	237,848
SLAUGHTER:							
Daily average	24	60	105	152	201	190	
Month	752	1,681	3,266	4,562	6,218	5,694	22,173
SNYDER:							
Daily average	330	429	525	833	728	733	
Month	10,217	12,025	16 ,4	24,997	22,553	21,994	108,060
TAYLOR-LINK:							
Daily average	1,316	1,391	1.357	1,393	1,354	1,360	
Month	40,811	38,943	42,053	41,803	41.970	40,811	246,391
TOBORG:							
Daily average	1,830	1,806	1,854	1,803	1,688	1,691	
Month	56,741	50,563	57,479	54,095	52,326	50,726	321,930
WADDELL:							
Daily average	1,309	1,236	1,238	1,266	1,126	1 132	
Month	40,588	34,608	38,374	37,981	34,895	33.960	220,406
WARD (NORTH):							
Daily average	5,620	5,293	5,476	5,598	4,806	5 010	
Month	174,221	148,211	169,749	167,950	148,975	150,289	959,395
WARD (SOUTH):							
Daily average	11,153	10,754	11,586	11.001	9,419	9,406	
Month	345,758	301,098	359,178	330,040	291,990	282,180	1,910,244
WASSON:							
Daily average	2,211	2,912	3.540	4,335	4,638	4,627	
Month	68,552	81,534	109.736	130,025	143,764	138,817	672,438
WORLD:							
Daily average	847	752	889	898	705	711	
Month	26,243	21,067	27,571	26,968	21,866	21,338	145,053
WESTBROOK:							
Daily average	794	759	771	788	707	705	
Month	24,615	21,246	23,886	23,632	21,930	21,156	136,465
WHEAT:							
Daily average	1,361	1,369	1,317	1,260	1,192	1,192	
Month	42,176	38,320	40,842	37,794	36,965	35,758	231 855
YATES:							
Daily average	20,048	18,422	18,679	18,633	16,014	15,816	
Month	621,477	515,824	579,037	558,999	496,421	474,488	3 246,246
MISCELLANEOUS:							
Daily average	362	369	479	498	411	395	
Month	11,216	10,332	14,842	14,952	12,736	11,864	75,942
Daily average	184,219	182,713	191,505	196,941	180,541	180,584	186,106
First six months 1938	5,710,776	5,115,958	5,936,660	5,908,270	5,596,757	5,416,811	33,685,232
First six months 1937	5,406,938	5,391,326	6,579,662	6,145,724	6,609,318	6,385,562	36,518,530
First six months 1936	4,553,683	4,423,051	5,162.895	5,187,630	5,444,065	5,060,640	29,831,964
First six months 1935	4,552,381	4,149.964	4,600,741	4,392,450	4,469,983	4,305,750	26,471,269
First six months 1934	3,824,284	3,618,748	4,081,832	4,051,380	4,346,572	4,172,130	24,094,946

Miscellaneous fields and their total production for the six months include Bashara, 15,771 bbls.; Carter, 2,707 bbls.; Dobbs, 1,261 bbls.; Edwards, 1,536 bbls.; Garza, 4,847 bbls.; Irion, 2,953 bbls.; Johnson, 6,623 bbls.; Moore, 8,936 bbls.; Monroe, 6,174 bbls.; Northwest, 6,086 bbls.; Parker, 5,655 bbls.; Scanlon, 541 bbls.; Simpson, 686 bbls.; Webb Ray, 3,830 bbls.; Dean, 6,401 bbls.; White and Baker, 234 bbls.; Crockett, 1,701 bbls.; total, 77,942 bbls.

Semi-Annual Review

MAJOR DISCOVERIES AND INCREASE IN PRODUCTION IN MICHIGAN

By
O. C. PRESSPRICH

Michigan's development as an oil state set a fast pace in the first half of 1938, though drilling slackened in its richest field, Buckeye, Gladwin County. Production climbed steadily, with May breaking the state's all-time record. The number of producing wells climbed from 1,806 at the end of 1937 to 1,913 at midyear.

Three new fields of apparent importance were discovered, to which might be added an early-July discovery that appears to offer considerable promise of further northwestward development.

Add to this the hints of profitable production from levels deeper than those now recognized as favorable producers, and the picture of Michigan's oil industry in the first half of the year takes on even brighter colors than it carried at the year's opening.

Production at midyear showed a total of 9,747,972 bbls. as compared with 7,034,883 in the first half of 1937, 6,522,838 in the first half of 1936 and 6,927,313 in the first six months of 1935.

New fields were Edenville in Midland County, producing from the Dundee limestone, and the Monterey and Dorr pools in Allegan County, both Traverse producers.

Meantime the Salem field in Allegan County continued to expand, along with the Bentley pool in Gladwin County, the Clayton and Adams fields in Arenac County and the West Branch pool in Ogemaw County.

A late winter discovery in Fremont Township, Isabella County, gave small promise, but exploration continued in the hope of picking up a stable production like that of the nearby Sherman field.

Just over the edge in the second half of the year came the wildcat strike in Freeman Township, Clare County, more than 30 miles from the nearest oil production. The first well, S. J. Hegilmire Trust No. 1 A. E. Van Horn, SE SW NW section 3-18n-6w, Freeman Township, near the village of Temple, 17 miles northwest of Clare, showed a pinched-in natural gauge of nearly 300 bbls. in the first 24 hours, with prospects of production as high as 1,000 bbls. daily when acid treatment is applied. This wildcat's production comes from what geologists describe as the Dundee-Monroe stratum at a depth only a trifle short of 4,000 feet—the deepest production in Michigan.

Meantime, interest appeared to be turning in other fields to the possibilities of production from deeper levels. Tests of this variety were being prepared in Buckeye field to sample the Monroe limestone; in Clayton-Arenac to test the Dundee; in Jasper-Midland for Monroe tests.

At the same time exploration was preparing in Tuscola County, up in the "thumb" of the Michigan "mitten," where a Monroe test this spring found a small quantity of a high-gravity oil. In June this well, which had been acidized, produced an average of 37 bbls. per day.

Will Test for Deep Pay

One of the events of the first half-year which gave promise of interest in the later months was announcement of a test of lower strata in the old Saginaw field. Saginaw production came entirely from the Berea sand, and now, after 13 years, has dwindled to near the vanishing point. A rig has been erected inside the Berea production area, only a few miles from the city of Saginaw, for a test of the Dundee, possibly of the Monroe, in the hope of reviving the once productive Saginaw area.

Edenville Discovery

The Edenville discovery was made by Chapman Oil Co. with its No. 1-A State, NW SW NE section 27-16n-1w, Edenville Township, Midland County, late in January. Top of the Dundee was found at 3,790 feet. Only 2 feet of pay had been penetrated when the well started flowing, producing 2,000 bbls. in the first four days tightly pinched in. The well was given a 30-minute open flow test and produced 110 bbls., or at the rate of 5,280 bbls. per day. It was acidized with 1,000 gallons in April and flowed 1,000 bbls. per day.

The Edenville discovery came at the end of January, when highways were sheeted in ice, and general weather conditions so unfavorable that further development of the district got away to a slow start. But with the arrival of good weather the pace quickened and at the end of the half-year Edenville boasted 21 producers with a combined daily average output of 3,128 bbls., and with about 60 other wells drilling. The Edenville area, however, has proved a spotty field, with dry holes numerous, even in the vicinity of substantial producers. So frequent have been the disappointments there in apparently favorable locations that Edenville has become a puzzle to operators and geologists. Tests made thus far have failed to establish the trend of the oil-bearing formation, and boundaries are far from established. Fully half of the dry holes have been on inside locations, at least partly surrounded by production.

The Monterey and Dorr pools in Allegan County probably really are extensions of the Salem pool, a 1937 discovery, but wide gaps remain to be closed by successful testing before the pools can be considered as consolidated. The Allegan territory showed a gain in producing wells of more than 100 per cent in the half-year, jumping from 53 at the end of 1937 to 108 at the halfway point this year.

The Monterey discovery was made by Sim B. Hood No. 1 H. Wright, in section 9-3n-13w, in February, but the well was not completed until April 20. It had Traverse lime at 1,613-30 feet, total depth, was acidized with 2,000 gallons and produced 1,000 bbls. of oil on its first 24-hour test after the treatment.

The Dorr discovery was that of Eureka Development Co. No. 1 Widenfiller, in section 29-4n-12w. Traverse lime was found at 1,617-19 feet, total depth, and after a 1,000-gallon acid treatment it made 26 bbls. of oil in 24 hours. This was in March.

Other discoveries of the half year were not as important as the Edenville, Dorr and Monterey pools, but they contributed to the year's advance in development work.

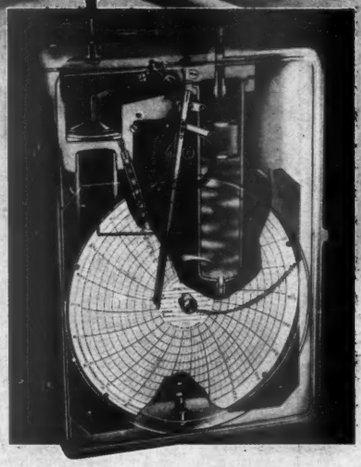
Gulf Refining Co.'s wildcat, No. 1 Marston, C SE SW NE, section 1-14n-4e, Bay County, found Dundee lime at 2,795 feet and drilled to 2,956 feet, completing the well late in January with a 1,000-gallon acid treatment, which brought up 30 bbls. per day initial production.

McClanahan Oil Co. No. 1 Connolly, in section 35-17n-2e, Gladwin County, was completed late in January in Dundee lime topped at 3,484 feet, total depth 3,527

MICHIGAN

Daily Average and Monthly Production in First Six Months of 1938

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Ttl. 6 mos. (bbls.)
PORTER-YOST:							
Daily average	8,104	8,304	7,670	7,605	7,683	7,619	
Month	251,224	232,512	237,770	228,150	238,173	228,570	1,416,399
GREENDALE-CHIPPEWA:							
Daily average	1,600	1,687	1,901	1,934	1,952	1,922	
Month	49,600	47,236	58,931	58,020	60,512	57,660	331,959
GENEVA-MIDLAND:							
Daily average	26	27	15	29	27	24	
Month	806	756	465	870	837	720	4,454
EDENVILLE-MIDLAND:							
Daily average	.....	120	275	981	1,628	3,128	
Month	.....	3,360	8,525	29,430	50,468	93,840	185,623
VERNON-LEATON-DENVER:							
Daily average	1,592	1,544	1,255	1,360	1,276	1,187	
Month	49,352	43,232	38,905	40,800	39,556	35,610	247,455
SHERMAN-ISABELLA:							
Daily average	4,928	4,457	4,298	3,593	2,921	2,602	
Month	152,768	124,793	133,238	107,790	90,551	78,060	687,203
MONTCALM COUNTY:							
Daily average	896	926	872	853	693	853	
Month	27,776	25,928	27,032	25,590	21,483	25,590	153,399
BEAVERTON:							
Daily average	252	272	284	259	234	240	
Month	7,812	7,616	8,804	7,770	7,254	7,200	46,456
BENTLEY-GLADWIN:							
Daily average	238	261	367	635	634	682	
Month	7,378	7,308	11,377	19,050	19,654	20,460	85,227
BUCKEYE-WICKLUND-OARD:							
Daily average	26 628	26,694	25,811	27,361	24,116	21,577	
Month	825,468	747,432	800,141	820,830	747,596	647,310	4,588,777
SECORD-GLADWIN:							
Daily average	14	7	21	58	20	7	
Month	434	196	651	1,740	620	210	3,851
OGEMAW:							
Daily average	2.709	2,784	3,488	2,821	2,878	3,295	
Month	83,979	77,952	108,128	84,630	89,218	98,850	542,757
ADAMS-ARENAC:							
Daily average	134	185	126	118	224	166	
Month	4,154	5,180	3,906	3,540	6,944	4,980	28,704
CLAYTON-ARENAC:							
Daily average	398	1,354	2,091	2,922	6,982	5,652	
Month	12,338	37,912	64,821	87,660	216,442	169,560	588,733
SAGINAW-HEMLOCK:							
Daily average	42	46	28	28	57	54	
Month	1,302	1,288	868	840	1,767	1,620	7,685
BIRCH RUN:							
Daily average	67	67	64	56	52	58	
Month	2,077	1,876	1,984	1,680	1,612	1,740	10,969
DUNDEE-MONROE:							
Daily average	24	25	22	22	19	19	
Month	744	700	682	660	589	570	3,945
ALLEGAN COUNTY:							
Daily average	3,596	4,582	3,630	5,531	5,250	3,591	
Month	111,476	128,296	112,530	165,930	162,750	107,730	788,712
MUSKEGON:							
Daily average	80	135	148	128	169	145	
Month	2,480	3,780	4,588	384	5,239	4,350	20,821
FREMONT-ISABELLA:							
Daily average	.....	.....	.....	.....	36	26	
Month	.....	.....	.....	.....	1,116	780	1,896
Daily average	51,328	53,477	52,366	56,294	56,851	52.847	53 840
First six months 1938	1,591,168	1,497,356	1,623,346	1,685,364	1,762,381	1,585,410	9,745 025
First six months 1937	903,347	885,532	1,219,911	1,345,791	1,310,048	1,270,254	6,934,883



With **WESTCOTT** recorders metering the entire gas pressure for a field of 57 wells, for instance, Louisiana oil and gas field engineers take their dependably fine accuracy and low-cost maintenance pretty much as a matter of course—

METRIC-AMERICAN and **WESTCOTT-AMERICAN** Orifice Meters, Flowmeters and Control instruments are found throughout Louisiana's production, pipeline and refinery operations . . . meeting every condition of pressure, flow, kind and size of piping, specific gravity, viscosity, temperature . . .

Integrating, Recording and Indicating types of Orifice Meters and Flowmeters . . . for the modern metering of oil, gas, steam, air and liquids . . . are described fully in Bulletins EG-2 and E-3. (Also write for complete specifications on the New **METRIC** Air-Actuated Remote Recorder and Controller.)

METRIC METAL WORKS • ERIE, PA.

AMERICAN METER CO. INC.

ESTABLISHED 1836

1044

feet. It was acidized with 4,000 gallons and produced 145 bbls. per day.

The Fremont pool was opened by Bell-Marks No. 1 Fox, in section 5-13n-5w, Isabella County, in Dundee lime at 3,690-3,700 feet. It was acidized with 350 gallons in May and produced 48 bbls. of oil in eight and one-half hours, and completed.

The Crystal Syndicate No. 1 Jewell, in section 3-1n-12w, Allegan County, found Traverse lime at 1,540-43 feet, total depth, in May, and was completed as a 45-bbl. initial producer.

The Pine pool was opened by H. L. Gentry Engineering Co. No. 1 Christensen, section 29-11-8w, Montcalm County, in Traverse lime at 2,835-36 feet in May and was completed an 85-bbl. initial producer.

Rocky Mountain Area

(Continued from Page 138)

mile south and 1¼ miles west with the completion of two wells in 1937, was extended a mile to the east in June, 1938, with the completion of the Mountain Fuel Supply Co. No. 3-E Murphy, NW NW SW section 23-3n-24e. It topped the Dakota at 5,918 feet and was drilled to 6,036 feet where it was completed for 16,000,000 feet per day with a rock pressure of 2,160 pounds. There are now six wells on the structure of which five were completed in the Dakota and one in the Frontier. Tests drilled below the Dakota found nothing of value in the Sundance. Approximately 1,300 acres have been proven by development and the limits of the field have not been determined by the drill. The developed area is approximately 2½ miles east and west and 1½ miles southeast and northwest. The field is connected with the Mountain Fuel Supply Co.'s trunk line to Salt Lake City and Ogden.

UTAH

Summary of Wells Completed First Half of 1938

County—	Comp.	Prod.	Dry	Gas
Daggett	1	0	0	1
Grand	1	0	1	0
Total	2	0	1	1

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January-May	0	0	0	0
June	2	0	1	1
Total	2	0	1	1
Same period 1937	1	0	1	0
Difference	1	0	1	0

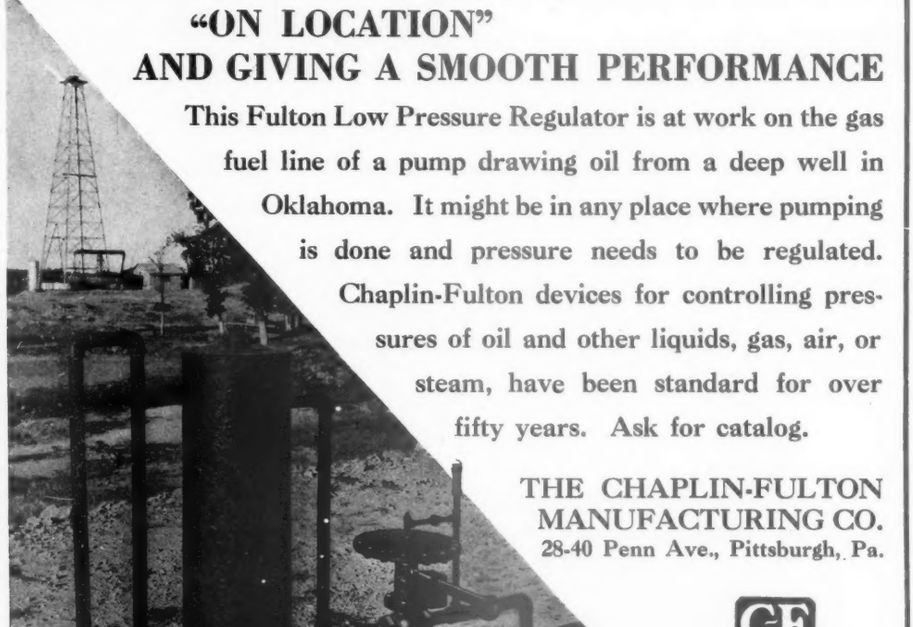
NEBRASKA

Summary of Wells Completed First Half of 1938

County—	Comp.	Prod.	Dry	Gas
Sioux	1	0	1	0
Total	1	0	1	0

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	0	0	0	0
February	1	0	1	0
March-June	0	0	0	0
Total	1	0	1	0
Same period 1937	2	0	2	0
Difference	1	0	1	0



"ON LOCATION"
AND GIVING A SMOOTH PERFORMANCE

This Fulton Low Pressure Regulator is at work on the gas fuel line of a pump drawing oil from a deep well in Oklahoma. It might be in any place where pumping is done and pressure needs to be regulated. Chaplin-Fulton devices for controlling pressures of oil and other liquids, gas, air, or steam, have been standard for over fifty years. Ask for catalog.

THE CHAPLIN-FULTON MANUFACTURING CO.
28-40 Penn Ave., Pittsburgh, Pa.

CF

Panhandle Review

(Continued from Page 155)

Moore County to the south, and the gas fields in Texas County, Oklahoma, and the Hugoton, Kansas, fields to the north.

A gas field was opened in southeastern Gray County late in April when Lone Star Gas Co. No. 1 Fowler, which was first thought to have tapped an oil reserve later was completed for 25,000,000 feet of gas from the granite wash formation at a total depth of 2,500 feet.

Early in June Carson County received a new oil pool when Northern Natural Gas Co. No. 1 J. A. Daner, section 237, Block B-2, H.&G.N. Survey, 6 miles southwest of the Pampa oil field, was officially gauged at 484 bbls. per day. This wildcat was drilled with the expectations of adding to the company's gas reserves, however, since it has proven to be an oil producing area, little immediate development is expected for most of the adjoining acreage is held also by gas companies.

Wildcat activity in the Panhandle area is rather slack at present with only about 10 or 12 tests drilling in the area. Perhaps one of the more important of these was recently staked by the Sinclair Prairie Oil Co. as its No. 1 W. H. Bush, in northwestern Potter County, 14 miles above Amarillo. The test is contracted to 8,000 feet, one of the deepest in the area and plans a thorough exploration of the Ellenburger formation.

Canadian Review

(Continued from Page 148)

Of this production, about 1,800 bbls. a day was naphtha; the remainder light crude.

On January 1, Turner Valley crude was subject to 35 per cent proration, continued from the previous year. On January 15 this was increased to 42 per cent. April 1 a six-day production week was made effective. On May 15, proration was increased to 44 per cent; June 1 decreased to 30 per cent and June 17 increased to 37 per cent.

Alberta government returns show the following comparative figures for the various Alberta producing areas in the four-month period:

	1937 Jan.-April (bbls.)	1938 Jan.-April (bbls.)
Turner Valley limestone	590,366	1,743,278
Turner Valley shallow	3,518	2,760
Red Coulee-Border	4,395	4,725
Wainwright-Ribstone	4,053	6,135
Taber	600	3,858
Total	602,932	1,760,756

The Taber field, with one producing well, is now making fairly regular tankcar shipments.

New Depth Record

West of the crude oil area, Okalta Oil Co. No. 6, LSD 3, section 30-18-2w5, has established a new depth record for Canada, drilling below 9,030 feet with the lime expected around 9,400 feet.

Alberta Wildcatting

The spectacular results secured in Turner Valley crude production have led to slackening of interest in Alberta wildcat areas. East of Turner Valley, McLeod Oil Co. No. 1, LSD 4, section 6-21-2w5, on the New Valley structure, is at 8,462 feet with considerable crude in the hole. Several tests are still drilling in various foothill areas, of which Green Valley Oils No. 1 Banner, LSD 6, section 34-17-3w5, on the Highwood-Sinclair structure southwest of Turner Valley, is more than 608 feet in the Madison with a small gas production.

BALDWIN OIL FIELD CHAINS
Sold in all Oil Fields
FACTORY REPRESENTATIVE
GEO. J. FIX - DALLAS, TEXAS

Semi-Annual Review

RAMSEY STRIKE, NEW SEMINOLE WORK ARE FEATURES IN OKLAHOMA

By DAL DALRYMPLE

Several discoveries of some importance were recorded in Oklahoma in the first six months of 1938, the most spectacular strike being the comparatively small but highly productive Ramsey pool in Payne County. However, the feature of field activity during this period —an era that saw the number of operations decline sharply from the high point of 1937—was the rejuvenation of some of the old pools and development of shallow horizons that were neglected back in the years when operators sought only the big flush production of deep pay zones.

The decline in field activity set in before the end of 1937, with operations continuing to slump after the turn of the year until mid-spring, when they had sunk to the lowest level of the last five years. The extent of the decline is shown by comparison of completions of 1937 with those of this year to date.

Completions in 1937 totaled 2,672. Of that number, 1,416 wells were completed in the first six months and 1,256 in the last six months.

The total for the first half of 1938 was only 871, or 545 less than in the corresponding period of the preceding year. If completions in the last half of 1938 continue at the same rate, the total for the year will be approximately 1,742 or 930 less than last year.

Producing oil wells completed in the first half of 1937 totaled 994 and dropped off to 858 in the last half of the year, compared with only 531 this year.

The number of dry holes also slumped from 361 and 336 in the respective periods of 1937 to 276 in the first six months of this year.

Gas Wells Increase

Only in number of gas well completions was an increase shown, the 64 of 1938 topping the 61 and 62 of the respective halves of last year.

Initial production of completed oil wells this year also was far under initial yield of the 1937 completions. Initial production of the 531 oil completions of 1938 was 117,654 bbls., compared with the 408,156 bbls. initial production of the 994 completions in the first half of the preceding year. The 858 oil completions of the last half of 1937 had initial yield of 269,000 bbls.

The let-up in field activity also was reflected in wildcat completions, exploration for new producing areas being curtailed considerably.

Wildcats listed as completions in the first half of this year totaled 92 and included 13 oil wells, 6 gas wells and 73 failures.

In the corresponding period of 1937, there were 127 wildcat completions, including 14 oil wells, 10 gas wells and 103 dry holes.

The last half of 1937 saw 109 wildcats finaled, including 20 oil wells, 5 gas wells and 84 failures.

Although operators drilled fewer wildcat failures this year than in either of the 1937 periods, they bored deeper into the earth to do so.

Average depth of 1938 dry holes was 3,763 feet, as against 3,446 feet in the first half and 3,625 feet in the last half of 1937.

Conversely, average depth of wildcat producers completed this year was less than that of 1937, the averages being 3,314 feet for 1938 and 3,392 and 3,960 feet for the respective periods of the preceding year.

Shallow Discoveries

This decline in average depth of wildcat producers may be accounted for partly by the fact that several of this year's discoveries were drilled in old areas where operators were seeking only shallow production.

The 1938 record to date does not loom large on the oil horizon in comparison with the earlier year, but it does offer some interesting developments and encouraging results.

The revival of activity in the Greater Seminole-St. Louis areas was outstanding. In the heydey of those great fields Wilcox sand was the goal of practically all operators, shallower pay formations being overlooked or ignored. The boom subsided and operators, continuing their quest for Wilcox production, went on to Oklahoma City or other newer fields. When activity in those areas lapsed in turn, many of the operators turned their attention again to the Seminole district.

As a result, several new producing areas have been opened almost within the shadow of derricks in the older fields, and new pay sands have been uncovered in the very heart of the old Wilcox sand pools. These latter, principally, were the shallow zones overlooked in the original development.

Much of this new work is in the St. Louis district of Pottawatomie County, currently one of the busiest areas in the state. In addition to deepening, plugging back or otherwise reconditioning old wells, many new wells have been and are being drilled in the old field. Some of these operations have been within proven limits, others have extended the field.

Much of the activity was in southern and southwestern Seminole County and in northern Pontotoc County. The area bounded by the old Little River and Konawa pools of Seminole County on the east, the St. Louis district of Pottawatomie County on the west and the Bebee pool of Pontotoc County on the south has been especially attractive to operators.

Seven Seminole Strikes

As a result, seven of the wildcat strikes of 1938 were in that general area. That does not mean that seven separate pools were opened, however, as further development proved some of the wildcat areas to be connected and producing from the same common source.

The first strike of the year in this sector came late in February, when Hall-Troup & Moore No. 1-A Brinlee, wildcat in SW SW NE section 27-6-5, was completed for 8,500,000 feet of gas in Calvin sand at 2,298-35 feet. Then, in April, C. E. Davis and associates No. 1 Jones, NW NE SW section 34-6-5, was completed for 120 bbls. of oil initially from Senora or Boggy sand at 2,295-2,307 feet. A third wildcat in that township was completed early in June at Grisso Royalty Co. No. 1 Johnson, NE SW SW section 27-6-5, for 242 bbls. of oil initially from sand at 2,697-2,714 feet. Although classed as wildcats, the areas opened by these wells were combined to form the West Konawa pool.

The Hazel pool was opened in May at W. A. Villines and others No. 1 Swan, NW NE NW section 26-7-5. It had initial yield of 135 bbls. of oil from Thurman sand at 2,985 feet, total depth 3,001 feet.

The next strike in that district was in May at W. A. Delaney and others No. 1 Swan, SE SW SW section 18-6-6, producing 80 bbls. initially from Thurman sand

OKLAHOMA

Summary of Wells Completed First Half of 1938

County—	Comp.	Prod.	Dry	Gas
Atoka	3	0	3	0
Beckham	1	0	1	0
Bryan	1	0	1	0
Caddo	19	6,135	2	8
Carter	46	5,553	8	1
Choctaw	1	0	1	0
Cleveland	3	1,085	1	0
Cimarron	1	0	1	0
Coal	2	323	1	0
Comanche	2	1	1	0
Cotton	2	0	2	0
Creek	79	2,871	27	7
Garfield	5	314	2	1
Garvin	9	484	2	0
Grady	7	252	1	0
Grant	4	434	3	0
Greer	3	0	3	0
Haskell	1	0	0	1
Hughes	16	562	10	1
Jefferson	20	308	6	0
Johnston	2	0	2	0
Kay	9	579	6	0
Kiowa	3	3	2	0
Lincoln	42	4,876	8	3
Logan	10	65	8	1
Murray	1	0	0	1
Muskogee	21	106	9	5
Noble	10	3,813	2	0
Okfuskee	24	465	12	1
Oklahoma	39	23,595	3	3
Okmulgee	74	863	29	5
Osage	51	2,189	18	4
Pawnee	14	436	5	1
Payne	18	12,462	7	0
Pittsburg	3	0	2	1
Pontotoc	81	14,731	23	6
Pottawatomie	62	10,407	18	2
Seminole	113	23,144	24	2
Stephens	39	1,002	8	4
Texas	4	0	0	4
Tillman	8	306	7	0
Tulsa	14	105	6	2
Wagoner	4	185	1	0
Total six months	871	117,654	276	64

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	135	19,377	46	13
February	129	18,657	36	12
March	144	18,925	48	12
April	130	22,628	37	9
May	146	21,432	43	10
June	187	16,635	66	8
First half 1938	871	117,654	276	64
First half 1937	1,416	408,156	361	61
Difference	545	290,502	85	3

OKLAHOMA NEW DISCOVERIES FIRST HALF OF 1938

Field; county—	Location	Operator—	Comp. week-end	No. wells June 30	Producing formation	Total depth, ft.	Initial potential, bbls.
Ramsey; Payne	18-18-2e	Mid-Continent Petroleum Corp. and others	Jan. 15	9	Wilcox	4,795	11,000
Okfuskee; Okfuskee	10-13-10	Mid-Continent Petroleum Corp.	Feb. 12	2	Wilcox	3,431	125
West Konawa; Seminole	27- 6- 5	Hall-Troup and Moore	Feb. 26	1	Calvin	2,325	8,500,000 ft. gas
Lehman; Okfuskee	21-13-10	Braswood Oil Co.	Mar. 5	1	Dutcher	2,866	38
McCann; Okmulgee	33-14-11	H. C. Detrick and others	Mar. 5	1	Sand	2,590	12,900,000 ft. gas
Bolby; Muskogee	22-13-19	H. H. Heydrick	Mar. 19	1	Sand	670	5,500,000 ft. gas
Waukomis; Garfield	34-21-6w	Hollenback, Burton and others	April 9	1	Marshall	7,336	294
West Konawa; Seminole	34- 6- 5	C. E. Davis and others	April 16	5	Senora	2,314	120
Clark; Garvin	16-3n-3e	B. C. D. Edwards	April 23	1	Pontotoc	2,676	15
Preame; Hughes	29- 9- 9	Amerada-Stanolind	April 23	1	Wapanucka-Cromwell	4,268	138
Panhandle; Texas	2-2n-14 e.c.m.	Hardendorf and Kuhn	May 7	1	Permian	2,725	37,500,000 ft. gas
Panhandle; Texas	6-1n-13 e.c.m.	Hagy, Harrington and Marsh	May 7	1	Permian	2,893	3,000,000 ft. gas
Hazel; Seminole	26- 7- 5	W. A. Villines and others	May 14	2	Thurman	3,001	135
Swan; Seminole	18- 6- 6	W. A. Delaney and others	May 28	1	Thurman	2,693	80
Wolfe; Murray	8-1n-2e	Gilbreath and Sutton	June 4	1	Bromide	2,522	35,345,000 ft. gas
South Hazel; Seminole	35- 7- 5	W. A. Villines and others	June 11	1	Boggy	3,005	185
West Konawa; Seminole	27- 6- 5	Grisso Royalty Co.	June 11	1	Boggy	2,714	242
East Hazel; Seminole	25- 7- 5	Greer and others	June 11	1	Thurman	3,014	25
North March; Payne	6-18- 5	R. L. Kemp and others	June 25	1	Bartlesville	3,705	5,000,000 ft. gas

WHEN WINTER COMES...

Engines Demand Low Pour Point Lubricating Oils

Oils from paraffin or mixed base crude deserve and need this most efficient pour point depressant if they are to work satisfactorily and please the winter motorist.

SANTOPOUR is an oily liquid closely resembling a petroleum product itself. It has been tried by refiners who have given it immediate favorable reception because of its unusual stability.

We invite you to investigate the advantages that SANTOPOUR offers for your oil. A sample will be sent on request.

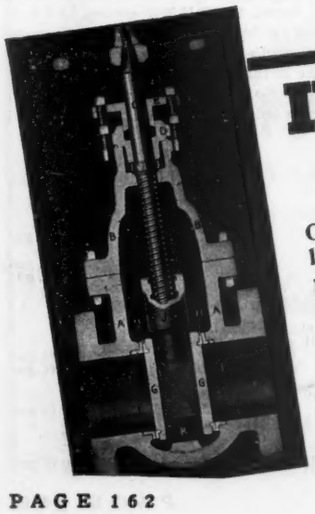
Other Monsanto Chemicals for the Oil Industry

PHENOL
CRESYLIC ACID AND CRESOLS
CAUSTIC ACID
MURIATIC ACID
SANTOLUBE C C (A corrosion inhibitor for lubricating oils)
PHOSPHORIC ACID (and its derivatives)
SULFURIC ACID
CHLORINE

CHEMICALS of QUALITY Monsanto ST. LOUIS, U.S.A.

Monsanto Chemical Company
ST. LOUIS, U.S.A.

New York • Chicago • Boston • Birmingham • Charlotte • Detroit • Los Angeles • San Francisco • Montreal • London



INSTALL them and FORGET them

Once you have put Ludlow valves in your oil or gas lines you can forget them for years. Their simple wedge closure and unusually fine materials and workmanship eliminate valve trouble from the start. There's a big saving of time and money when you standardize on Ludlow. Send for details and estimates.

The LUDLOW VALVE MFG. CO., Troy, New York
419 West Alabama, Houston, Texas
Mid-Continent Supply Co., Houston, Texas

at 2,671-91 feet. The area was named the Swan pool.

The South Hazel pool was opened in June at Villines and others No. 1 Reed, NE cor. section 35-7-5, for 185 bbls. of oil initially from Boggy sand at 2,991-99 feet; and the East Hazel pool at Greer and others No. 1 Coker, NW NE NE section 25-7-5, for 25 bbls. of oil from sand at 2,997-3,012 feet.

Develop Dora, Traugh

The Dora and Traugh pools, discoveries of 1937 and also in this general Seminole County area, were among the more active areas of the state the first half of this year. Both pools were extended and both yielded several comparatively large producers. Other areas in the old district that received attention from operators this year included the Tyrola and Wetley areas of southern Seminole County; the Bebee, East Bebee and Oakman pools of northern Pontotoc County, and the Allen field of Seminole, Pontotoc and Hughes counties.

There also has been considerable development in the Oklahoma City field so far this year, operators seeking productive levels above Wilcox sand. The bulk of this work was confined to the area north and northwest of the Wilcox zone in the Capitol extension, where several wells were completed in dolomite and other Simpson formations. There also was some new activity in the older part of the field to the south, with shallow sands that were passed up during the original drilling campaign as the goal.

The old Cement field of Caddo County provided one of the few sensations of 1938 in January when a 3,500-bbl. oil well was completed at Ray Stephens, Inc., No. 2 Griffin, SE NE SE section 27-6-10w, giving the pool a far western extension. It was productive from sand at 4,348-62 feet. Since then, several oil wells and some tremendously large gas wells have been completed and new pay zones uncovered. The formations are erratic in this field and geology is uncertain, but this has not deterred development. Lack of market has curtailed operations, however, and only a few wells were being drilled at mid-year. Independent operators accounted for much of the new work at Cement, but major oil companies hold many leases and have shared in the development.

Old Pool Revived

The Sac and Fox pool of eastern Lincoln County is another old sector that has had its greatest development this year. Opened by Wilcox Oil & Gas Co. several years ago, it was inactive until certain government restrictions on Indian leases were removed. Several wells producing from Prue sand have been completed this year, the field has been extended and is yet to be defined.

Development of deep sand production in the Fox and Milroy areas of Carter and Stephens County has been slow and tedious, with completions few and far between. Several deep tests were near completion at mid-year.

The deepest test yet drilled in Oklahoma was a failure late in April. It was Gulf Oil Corp. No. 1 Thomas, SW NW NW section 14-4n-5w, in southeastern Grady County. It was started about June 1, 1937, and was drilled to a total depth of 11,415 feet, where drill pipe became stuck and it was abandoned.

Other old productive areas that continued active were the Creek and Okmulgee County fields and, in a lesser degree, those of Osage County. Indeed, Creek and Okmulgee counties rank consistently among the most active areas in the state. Some new producing sectors were opened in these old districts, but they usually were classified with some previously discovered pool. The producers generally were small and many dry holes were drilled, the great majority of the wells being completed in shallow formations. Many old wells were reworked and reconditioned in the Cushing, Olive, Bristow, Slick and Glenn pools. The bulk of this work was carried on by independent operators, although some of the major companies have retained interests.

Although new operations in old areas accounted for a large proportion of the 1938 activity, the six-month period was not without its important and interesting discoveries, in addition to those in the Seminole area, previously mentioned.

Open Ramsey Pool

The first and largest discovery of the year was completed in January, although it had given indications of opening a new pool late in 1937. It was Mid-Continent Petroleum Corp. and associates No. 1 Ramsey, SW SW NW section 18-18-2e, which opened the Ramsey pool southwest of Stillwater, in Payne County. It was rated as an 11,000-bbl. well initially, producing from Wilcox sand at 4,768-95 feet. It flowed 935 bbls. of 43.2-gravity

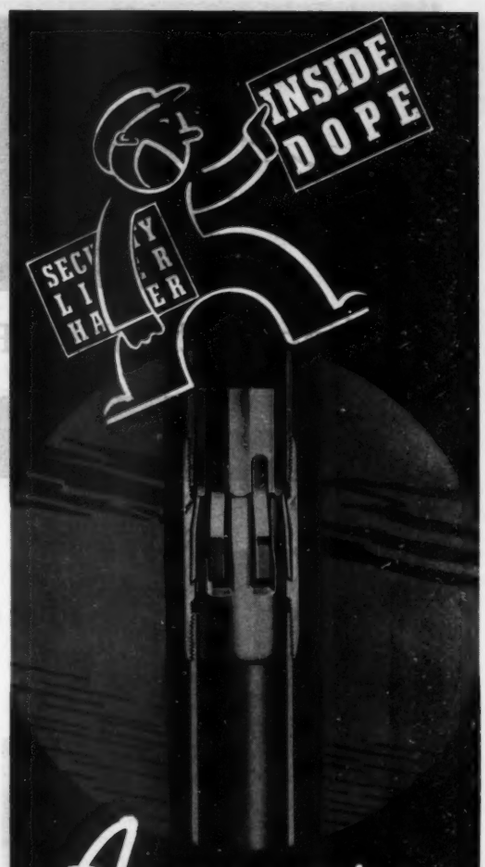
(Continued on Page 167)

OKLAHOMA

Daily Average and Monthly Production in First Six Months of 1938

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Ttl. 6 mos. (bbls.)
WASHINGTON COUNTY:							
Daily average	3,386	3,571	3,768	3,843	3,118	3,260	
Month	104,966	99,988	116,808	115,290	96,658	97,800	631,510
NOWATA COUNTY:							
Daily average	10,792	12,144	12,787	12,805	10,909	10,800	
Month	334,552	340,032	396,397	384,150	338,179	324,000	2,117,310
ROGERS COUNTY:							
Daily average	1,568	1,802	1,778	1,856	1,566	1,540	
Month	48,608	50,456	55,118	55,680	48,546	46,200	304,608
OSAGE AND EASTERN KAY COUNTIES:							
Burbank—							
Daily average	7,562	7,699	7,687	7,732	6,971	6,819	
Month	234,422	215,572	238,297	231,960	216,101	204,570	1,340,922
South Burbank—							
Daily average	13,822	11,735	11,525	11,226	10,664	9,606	
Month	428,482	328,580	357,275	336,780	330,584	288,180	2,069,881
Naval Reserve—							
Daily average	5,093	5,139	5,122	5,061	4,698	4,590	
Month	157,883	143,892	158,782	151,830	145,638	137,700	895,725
Other Osage fields—							
Daily average	13,426	13,902	14,073	13,748	11,535	12,735	
Month	416,206	389,256	436,263	412,440	357,585	382,050	2,393,800
TULSA COUNTY:							
Daily average	4,085	4,406	4,364	4,310	3,702	3,806	
Month	126,635	123,368	135,284	129,300	114,762	114,180	743,529
WAGGONER COUNTY:							
Daily average	870	878	783	787	699	701	
Month	26,970	24,584	24,273	23,610	21,669	21,030	142,136
OKMULGEE COUNTY:							
Daily average	4,245	4,700	4,822	4,997	4,676	4,666	
Month	131,595	131,600	149,482	149,910	144,956	139,980	847,523
MUSKOGEE AND McINTOSH COUNTIES:							
Daily average	731	809	890	884	778	802	
Month	22,661	22,652	27,590	26,520	24,118	24,060	147,601
OKFUSKEE COUNTY:							
Dill—							
Daily average	1,411	1,287	1,213	1,151	946	918	
Month	43,741	36,036	37,603	34,530	29,326	27,540	208,776
Miscellaneous—							
Daily average	2,416	2,399	2,372	2,362	2,353	2,312	
Month	74,896	67,172	73,532	70,860	72,943	69,360	428,763
SEMINOLE, POTTAWATOMIE, HUGHES AND PONTOTOC COUNTIES:							
Bowlegs—							
Daily average	10,231	9,880	9,532	8,824	8,430	8,156	
Month	317,161	276,640	295,492	264,720	261,330	244,680	1,660,023
Seminole City—							
Daily average	8,198	8,053	7,901	7,590	7,389	7,056	
Month	254,138	225,484	244,931	227,700	229,059	211,680	1,392,992
East Seminole—							
Daily average	1,576	1,655	1,543	1,631	1,536	1,475	
Month	48,856	46,340	47,833	48,930	47,616	44,250	283,825
West Seminole—							
Daily average	2,552	2,549	2,524	2,389	2,125	1,986	
Month	79,112	71,372	78,244	71,670	65,875	59,580	425,853
Earlsboro, East, South and North Earlsboro—							
Daily average	12,179	11,121	11,246	10,395	9,536	8,689	
Month	377,549	311,388	348,626	311,850	295,616	260,670	1,905,699
Little River and East Little River—							
Daily average	10,086	9,395	9,267	8,811	8,069	7,687	
Month	312,666	263,060	287,277	264,330	250,139	230,610	1,608,082
Searight and North Searight—							
Daily average	3,586	3,532	3,294	2,771	2,909	2,763	
Month	111,166	98,896	102,114	83,130	90,179	82,890	568,375
Mission—							
Daily average	1,823	1,902	1,694	1,575	1,464	1,402	
Month	56,513	53,256	52,514	47,250	45,384	42,060	296,977
Carr City—							
Daily average	4,390	4,227	4,034	3,342	3,510	3,463	
Month	136,090	118,356	125,054	100,260	108,810	103,890	692,460
Maud—							
Daily average	620	621	606	632	580	594	
Month	19,220	17,388	18,786	18,960	17,980	17,820	110,154
Total Seminole field—							
Daily average	55,241	52,935	51,641	47,960	45,548	43,271	
Month	1,712,471	1,482,180	1,600,871	1,438,800	1,411,988	1,298,130	8,944,440
Asher and West Asher—							
Daily average	494	506	323	462	438	442	
Month	15,314	14,168	10,013	13,860	13,578	13,260	80,193
Allen district—							
Daily average	6,880	7,077	7,098	6,996	7,026	6,708	
Month	213,280	198,156	220,038	209,880	217,806	201,240	1,260,400
Beebe—							
Daily average	2,442	2,556	2,625	2,548	2,485	2,380	
Month	75,702	71,568	81,375	76,440	77,035	71,400	453,520
Bethel and North Bethel—							
Daily average	2,655	2,318	2,278	2,281	2,008	1,989	
Month	82,305	64,904	70,618	68,430	62,248	59,670	408,175
Conservation—							
Daily average	87	124	108	103	97	96	
Month	2,697	3,472	3,348	3,090	3,007	2,880	18,494
Cromwell—							
Daily average	3,452	3,257	3,309	3,255	3,331	2,944	
Month	107,012	91,196	102,579	97,650	103,261	88,320	590,018
Fish—							
Daily average	4,095	4,048	3,694	3,414	3,340	3,169	
Month	126,945	113,344	114,514	102,420	103,540	95,070	655,833
Fitts—							
Daily average	65,352	60,924	58,348	52,105	42,639	40,988	
Month	2,025,912	1,705,872	1,808,788	1,563,150	1,321,809	1,229,640	9,655,171
Gray—							
Daily average	1,149	1,066	961	1,019	956	913	
Month	35,619	29,848	29,791	30,570	29,636	27,390	182,854
Grisso—							
Daily average	107	93	94	93	89	84	
Month	3,317	2,604	2,914	2,790	2,759	2,520	16,904
Holdenville—							
Daily average	831	934	929	921	833	827	
Month	25,761	26,152	28,799	27,630	25,823	24,810	158,975
Jesse—							
Daily average	4,421	3,661	3,602	3,282	2,797	2,556	
Month	137,051	102,508	111,662	98,460	86,707	76,680	613,068
Keokuk—							
Daily average	7,634	6,625	5,256	4,463	4,490	3,957	
Month	236,654	185,500	162,936	133,890	139,190	118,710	976,880
Dora—							
Daily average	2,860	4,390	5,906	5,039	5,260	4,713	
Month	88,660	122,920	183,086	151,170	163,060	141,390	850,286
Steedman (North)—							
Daily average	292	314	312	309	276	272	
Month	9,052	8,792	9,672	9,270	8,556	8,160	53,502
Konawa-East Konawa—							
Daily average	1,282	1,399	1,402	1,407	1,282	1,253	
Month	39,742	39,172	43,462	42,210	39,742	37,590	241,918
Olympic—							
Daily average	7,062	6,629	6,126	5,824	5,343	5,331	
Month	218,922	185,612	189,906	174,720	165,633	159,930	1,094,723
Shawnee—							
Daily average	2,624	1,576	1,206	1,158	1,055	1,057	
Month	81,344	44,128	37,386	34,740	32,705	31,710	262,013
St. Louis-Pearson—							
Daily average	18,002	17,607	18,558	19,438	19,467	18,938	
Month	558,062	492,996	575,298	583,140	603,477	568,140	3,381,113

(Continued on Page 168)



Announcing

An amazing new LINER HANGER that works AUTOMATICALLY!

The Security Hook Collar Liner Hanger is radically different from any liner hanger you ever saw before...

- It sets *automatically* without twisting or turning the run-in string.
- It has no slips to jam or freeze in the casing.
- It positively cannot be set too high or too low in the hole.
- It won't slip down the casing under the heaviest liner loads.
- It releases with only a straight pull.
- It is available in steel or "SECURALOY"—the drillable material.

It's amazingly simple, absolutely foolproof, and completely dependable, and is field-proven in hundreds of installations.

Write today for illustrated bulletin giving full details!

SECURITY ENGINEERING CO., INC.
WHITTIER, CALIFORNIA
Export: Security Engineering Co., Inc., 420 Lexington Ave., N. Y. C.
Sievers Reamers ★ ★ ★ Securaloy
★ Security Drillable Products ★

SPECIFY

SPANG

The HIGHER STANDARD

THE *Complete* LINE OF CABLE-SYSTEM DRILLING AND FISHING TOOLS

Fig. 511 SPANG Weldless Jars

Fig. 524 SPANG Twisted Bit

Fig. 526 SPANG Straight Bit

Fig. 671 Eclipse Wire Rope Knife

On this page is reproduced only a small portion of the *complete* line of SPANG "Higher-Standard" Cable Tools.

SPANG Tools are *better* tools, because they are built by men who know the precise requirements of cable-system drilling. And behind them lies full knowledge of the properties of high-grade steels necessary for efficient heavy-duty drilling. Costs are lower, delays are fewer, drilling results are more satisfactory where these better tools are used.

A cable string can be only as strong as its weakest tool. "Misfit tools" may cost you time and money. So, SPECIFY SPANG for the entire string.

Fig. 505 Prosser Swivel Rope Socket

Fig. 611 SPANG Collar Socket

Fig. 627 SPANG Full-Circle Slip Socket

Fig. 620 SPANG Combination Socket

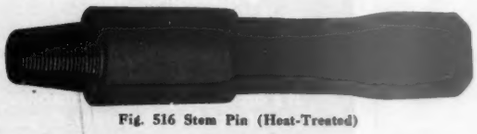


Fig. 516 Stem Pin (Heat-Treated)

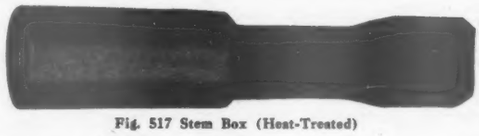


Fig. 517 Stem Box (Heat-Treated)

Plus—A Complete Line of

SPANG *"Higher-Standard"* PACKERS

SPANG & COMPANY, BUTLER, PA.

oil in the first two hours, and made other large flows before being listed as a completion. This strike was followed by a considerable leasing and royalty play, and within a short time outposts were being drilled to the south, west and north and three offset wells were started almost immediately. The three outposts were failures, apparently limiting the productive limits to a small area. All of the offsets were large producers, however, and by June 30 nine big producers had been completed and the tenth was near completion.

Another wildcat strike of considerable interest was completed early in April at H. R. Hollenbach, Nels Burton and others No. 1 Clark, NW cor. section 34-21-6w, now operated by Waukomis Oil Corp. It opened the Waukomis pool southeast of Enid, in Garfield County. It had initial yield of 294 bbls. of oil in 19 hours after shooting and acidizing. Production was from Marshall sand at 7,260-80 feet, total depth 7,336 feet. A second well was nearing completion July 1. This is the farthest west production in the north part of the state, and was expected to encourage further exploration in northwestern Oklahoma with the next revival in general field activity.

A Wilcox sand pool was opened in northern Okfuskee County early in February at Mid-Continent Petroleum Corp. No. 1 Ireland, SW NE SW section 10-13-10. It had initial yield of 125 bbls. of 39-gravity oil from sand at 3,420-31 feet, total depth. A second well has since been completed in the area, which was named the Okfuskee pool.

Recent Discoveries

Several wildcats were classed as pool openers at mid-year, but had not been completed for one reason or another by June 30. These included Sinclair Prairie Oil Co. No. 1 Crews, SW SW NE section 27-16-1e, near Meridian in Logan County. It was estimated good for 1,000 bbls. of oil from Wilcox sand at 5,203-33 feet, total depth 5,238 feet.

Texas Co. No. 1 Longan, C W half NW NW section 12-17-1e, opened the Coyle pool, south of the Ramsey pool and in Payne County, but was not listed as a completion. It flowed as high as 525 bbls. of high-gravity oil in 13 hours from Wilcox sand at 4,874 feet, total depth 4,956 feet, and was shut in.

W. A. Delaney and others No. 1 Bugher, SE SE SW section 12-7-2w, opened the Noble pool in Cleveland County, but completion was delayed while operators sought to shut off water. On a test at midyear, it flowed 330 bbls. of oil and 711 bbls. of water in 16 hours, from Wilcox sand at 7,670 feet, total depth 7,682 feet.

A fourth discovery near completion June 30 was Helmerich & Payne and Ohio Oil Co. No. 1 State School Land, SW SE SW section 16-28-1w, southeast of Braman, in Kay County. It found second Wilcox sand at 3,603-45 feet, and was showing for a good producer of high-gravity oil.

As the year rounded the half-way mark, there was evidence of some increase in general field activity and wildcat exploration was extended somewhat, due largely to recent strikes.

Results of Wildcat Drilling

County—	Oil and gas wells	Dry holes	Average depth of dry holes
Atoka	0	0	4,879
Bryan	0	1	5,003
Caddo	0	1	6,900
Carter	0	2	938
Choctaw	0	1	815
Cimarron	0	1	5,502
Cleveland	0	1	7,590
Coal	1	0	0
Cotton	0	1	1,305
Creek	0	1	2,320
Garfield	1	0	0
Garvin	1	0	0
Grady	0	1	11,415
Grant	0	1	6,236
Greer	0	2	940
Hughes	1	4	4,661
Jefferson	0	1	4,528
Johnston	0	2	2,279
Kay	0	3	2,811
Kiowa	1	1	803
Lincoln	0	4	4,143
Logan	0	4	5,985
Murray	1 (gas)	0	
Muskogee	1 (gas)	2	2,095
Okfuskee	2	3	4,082
Oklahoma	0	1	6,746
Okmulgee	1 (gas)	1	3,888
Osage	0	3	2,818
Pawnee	0	2	3,769
Payne	2 (1 gas)	3	5,215
Pontotoc	0	5	2,166
Pottawatomie	0	3	4,200
Seminole	7 (1 gas)	6	3,583
Stephens	0	5	3,283
Texas	2 (gas)	0	0
Tillman	0	6	3,574
Total	20	73	

Average depth of oil and gas wells, feet	3,314
Average depth of dry holes, feet	3,763
Percentage of oil wells	13.98
Percentage of gas wells	7.53
Percentage of dry holes	78.49

STATEMENT OF CONDITION
of the
FROST NATIONAL BANK
To the Comptroller of Currency
At the Close of Business Thursday, June 30, 1938

RESOURCES

Cash		$13,721,529.32
U. S. Government Obligations (all carried at par or less)		17,908,906.25
Investment Bonds and Municipal Obligations (all carried at par or less)		1,933,088.00
Stock in Federal Reserve Bank		63,300.00
Loans and Discounts		3,548,738.99
Interest Earned but not Collected		88,157.04
Building Account		997,893.41
Other Real Estate Owned		1.00
TOTAL		$38,261,614.01

LIABILITIES

Capital Stock		$ 1,200,000.00
Surplus		910,000.00
Undivided Profits		360,378.51
Reserved for Taxes, Interest, etc.		111,784.97
Interest and Discount Collected and not Earned		15,270.73
Amount set aside for dividends not yet declared		48,000.00
Deposits: Commercial	$19,904,274.23	
Correspondent Banks	5,151,976.30	
Time	8,646,893.40	
Public Funds	1,913,035.87	35,616,179.80
TOTAL		$38,261,614.01

DIRECTORS

H. LUTCHER BROWN, President, Brown Paper Co., Monroe, La.
J. H. FROST, President
JOHN FROST, Capitalist
T. C. FROST, Chairman of the Board
T. C. FROST JR., Vice-President
JOHN M. GADDIS, Vice-President
LYTLE W. GOSLING, Pres., Lytle W. Gosling & Co.
GUS J. GROOS, Partner, E. B. Chandler & Co.
EDWIN M. JONES, Oil Producer
H. L. KOKERNOT, Cattleman
J. H. LAPHAM, Director, The Texas Co.
NED McILHENNY, Vice-President
MARRS McLEAN, Oil Producer
DICK PRASSEL, Pres., Prassel Sash & Door Co.
W. C. RIGSBY, Capitalist
CHAS. SCHREINER, Capitalist & Cattleman
L. A. SCHREINER, Pres., Chas. Schreiner Bank, Kerrville, Texas
S. S. SEARCY, Attorney at Law

SAFETY · · · COURTESY · · · PROMPTNESS

FROST NATIONAL BANK
SAN ANTONIO
MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

OIL COMPANY PRINTED FORMS From STOCK
Covering Every Accounting and Reporting Need
OVER 300 Approved Forms To Choose From
Write For CATALOGUE or SAMPLES OF ANY FORMS
Mid-West Printing Company
415 East Fourth St. TULSA, OKLAHOMA

Use CURTIN CENTRIFUGES for Quick, Accurate Tests
They meet all *A.S.T.M. Standard Method D-96-35* and *A.P.I. Code No. 25* requirements. It is ruggedly built, simple in design and needs no special care. Gear ratio and throw of the crank designed to produce the required speed with the least effort consistent with good mechanical construction.
No. 3420 Cranks and Heads for 100 c.c. and 1! c.c. machines are interchangeable.
Write for complete details.
SOLD BY
W. H. CURTIN & CO.
INCORPORATED
HOUSTON, TEXAS

Especially Recommended for use in the

COPPER SWEETENING PROCESS

•

NICHOLS

TRIANGLE BRAND

COPPER SULPHATE

is preferred by leading refineries because of its high copper content, dependable uniformity and exceptional purity and freedom from foreign and inert matter.

99% Pure

Quotation on request, on any quantity required. Prompt shipments can be made from our nearest plant.

PHELPS DODGE REFINING CORPORATION

40 Wall Street, New York—230 No. Michigan Ave., Chicago

OKLAHOMA (Continued)

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Ttl. 6 mos. (bbls.)
Sasakwa—							
Daily average	1,677	1,565	1,538	1,498	1,319	1,369	
Month	51,987	43,820	47,678	44,940	40,889	41,070	270,384
Sasakwa Townsite—							
Daily average	569	482	513	485	419	407	
Month	17,639	13,496	15,903	14,550	12,989	12,210	86,787
Papoose-Gilcrease, Fuhrman—							
Daily average	798	805	811	801	705	732	
Month	24,738	22,540	25,141	24,030	21,855	21,960	140,264
Wofford—							
Daily average	385	380	379	381	347	352	
Month	11,935	10,640	11,749	11,430	10,757	10,560	67,071
Wetley—							
Daily average	304	277	288	281	208	211	
Month	9,424	7,756	8,928	8,430	6,448	6,330	47,316
Wewoka district—							
Daily average	2,757	2,482	2,566	2,610	2,187	2,149	
Month	85,467	69,496	79,546	78,300	67,797	64,470	445,076
Grayson—							
Daily average	397	406	338	325	305	307	
Month	12,307	11,368	10,478	9,750	9,455	9,210	62,568
Traugh—							
Daily average	990	1395	1,349	1,571	1,858	1,852	
Month	30,690	39,060	41,819	47,130	57,598	55,560	271,857
Adams—							
Daily average	856	796	791	802	556	540	
Month	26,536	22,288	24,521	24,060	17,236	16,200	130,841
Miscellaneous—							
Daily average	709	523	647	644	1,047	903	
Month	21,979	14,644	20,057	19,320	32,457	27,090	135,547
CREEK COUNTY—							
Glenn Pool, Sapulpa and Bowden—							
Daily average	3,973	3,603	3,816	3,819	3,921	3,887	
Month	123,163	100,884	118,296	114,570	121,551	116,610	695,074
Cushing-Shamrock—							
Daily average	10,476	10,800	10,840	10,919	9,895	9,814	
Month	324,756	302,400	336,040	327,570	306,745	294,420	1,891,931
Bristow district—							
Daily average	6,277	6,951	6,910	6,906	6,246	6,370	
Month	194,587	194,628	214,210	207,180	193,626	191,100	1,195,331
Manford and Olive—							
Daily average	2,341	1,967	2,511	2,649	2,270	2,283	
Month	72,571	55,076	77,841	79,470	70,370	68,490	423,818
Mounds, Independence and Miscellaneous—							
Daily average	1,040	991	983	981	810	802	
Month	32,240	27,748	30,473	29,430	25,110	24,060	169,061
PAWNEE AND PAYNE COUNTIES:							
Yale district, Maramec and Jennings—							
Daily average	3,916	3,778	3,830	3,827	3,323	3,494	
Month	121,396	105,784	118,730	114,810	103,013	104,820	668,553
Ramsey—							
Daily average	470	797	840	892	1,008	1,156	
Month	14,570	22,316	26,040	26,760	31,248	34,680	155,614
Ripley and Mehan—							
Daily average	296	244	273	269	205	202	
Month	9,176	6,832	8,463	8,070	6,355	6,060	44,956
Watchorn—							
Daily average	364	366	361	359	372	366	
Month	11,284	10,248	11,191	10,770	11,532	10,980	66,005
Cleveland and Keystone—							
Daily average	907	986	979	981	948	942	
Month	28,117	27,608	30,349	29,430	29,388	28,260	173,152
Stillwater—							
Daily average	151	145	147	144	168	153	
Month	4,681	4,060	4,557	4,320	5,208	4,590	27,416
Lauderdale—							
Daily average	952	1,022	1,012	996	872	877	
Month	29,512	28,616	31,372	29,880	27,032	26,310	172,722
Miscellaneous—							
Daily average	278	274	281	293	293	289	
Month	8,618	7,672	8,711	8,790	9,083	8,670	51,544
Orlando—							
Daily average	153	141	147	144	135	134	
Month	4,743	3,948	4,557	4,320	4,185	4,020	25,773
OKLAHOMA COUNTY:							
Oklahoma City—							
Daily average	126,541	113,917	117,446	119,617	105,124	97,156	
Month	3,922,771	3,189,676	3,640,826	3,588,510	3,258,844	2,914,680	20,515,307
Edmond—							
Daily average	6,872	8,041	7,228	5,952	4,552	5,156	
Month	213,032	225,148	224,068	178,560	141,112	154,680	1,136,600
Britton—							
Daily average	871	1,159	980	868	721	732	
Month	27,001	32,452	30,380	26,040	22,351	21,960	160,184
LINCOLN COUNTY:							
Sac and Fox—							
Daily average	712	882	956	866	1,188	1,192	
Month	22,072	24,696	29,636	25,980	36,828	35,760	174,972
Peck—							
Daily average	164	212	193	242	177	169	
Month	5,084	5,936	5,983	7,260	5,487	5,070	34,820
Chandler and Hoyt—							
Daily average	2,442	2,409	2,307	2,166	1,827	1,837	
Month	75,702	67,452	71,517	64,980	56,637	55,110	391,398
Stroud and Skellyville—							
Daily average	419	460	457	407	410	406	
Month	12,989	12,880	14,167	12,210	12,710	12,180	77,136
Gessman—							
Daily average	78	72	79	80	81	81	
Month	2,418	2,016	2,449	2,400	2,511	2,430	14,224
Wilzetta—							
Daily average	387	398	324	269	326	311	
Month	11,997	11,144	10,044	8,070	10,106	9,330	60,691
Lafoon—							
Daily average	690	683	799	599	537	535	
Month	21,390	19,124	24,769	17,970	16,647	16,050	115,950
Sporn—							
Daily average	617	543	573	607	543	539	
Month	19,127	15,204	17,763	18,210	16,833	16,170	103,307
Wellston, North—							
Daily average	1,897	1,819	1,886	1,783	1,720	1,717	
Month	58,807	50,932	58,466	53,490	53,320	51,510	326,525
Miscellaneous—							
Daily average	122	121	126	133	178	166	
Month	3,782	3,388	3,906	3,990	5,518	4,980	25,564
Davenport—							
Daily average	650	550	526	552	493	501	
Month	20,150	15,400	16,306	16,560	15,283	15,030	98,729
KAY, GRANT AND NOBLE COUNTIES:							
Blackwell, Deer Creek, Otstot, Caldwell and Webb—							
Daily average	1,319	1,524	1,516	853	813	814	
Month	40,889	42,672	46,996	25,590	25,203	24,420	205,770
Dilworth—							
Daily average	470	481	491	467	434	429	
Month	14,570	13,468	15,221	14,010	13,454	12,870	83,593
Lamont—							
Daily average	491	399	403	405	400	397	
Month	15,221	11,172	12,493	12,150	12,400	11,910	75,346
Ponca City—							
Daily average	224	248	252	249	240	242	
Month	6,944	6,944	7,812	7,470	7,440	7,260	43,870
Braman-North Braman—							
Daily average	3,106	2,357	2,346	2,012	1,928	1,933	
Month	96,286	65,996	72,726	60,360	59,768	57,990	413,126

(Continued on Next Page)

OKLAHOMA (Continued)

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Ttl. 6 mos (bbls.)
Hubbard—							
Daily average	536	511	514	566	547	542	
Month	16,616	14,308	15,934	16,980	16,957	16,260	97,055
Thomas—							
Daily average	234	225	229	232	238	231	
Month	7,254	6,300	7,099	6,960	7,378	6,930	41,921
Tonkawa—							
Daily average	2,098	2,204	2,206	2,059	1,989	1,982	
Month	65,038	61,712	68,386	61,770	61,659	59,460	378,025
Billings—							
Daily average	8,223	7,098	6,710	5,495	4,827	4,250	
Month	254,913	198,744	208,010	164,850	149,637	127,500	1,103,654
Lucien—							
Daily average	13,926	12,203	10,921	8,781	7,367	7,206	
Month	431,706	341,684	338,551	263,430	228,377	216,180	1,819,928
Vernon—							
Daily average	331	321	333	313	286	290	
Month	10,261	8,988	10,323	9,390	8,866	8,700	56,528
Polo—							
Daily average	724	667	629	514	503	501	
Month	22,444	18,676	19,499	15,420	15,593	15,030	106,662
Perry district—							
Daily average	198	192	189	191	168	159	
Month	6,138	5,568	5,859	5,730	5,208	4,770	33,273
North Lucien—							
Daily average	419	374	390	486	432	426	
Month	12,989	10,472	12,090	14,580	13,392	12,780	76,303
Miscellaneous—							
Daily average	197	189	194	187	191	188	
Month	6,107	5,292	6,014	5,610	5,921	5,640	34,584
GARFIELD COUNTY:							
Garber—							
Daily average	2,060	1,990	1,987	2,009	1,964	1,959	
Month	63,860	55,720	61,597	60,270	60,884	58,770	361,101
Miscellaneous—							
Daily average	116	111	110	101	107	104	
Month	3,596	3,108	3,410	3,030	3,317	3,120	19,581
LOGAN COUNTY:							
Crescent—							
Daily average	7,570	6,673	5,452	4,656	4,827	3,869	
Month	234,670	186,844	169,012	139,680	149,637	116,070	995,913
Langston—							
Daily average	1,177	727	735	737	653	650	
Month	36,487	20,356	22,785	22,110	20,243	19,500	141,481
Marshall-Lovell-Seward—							
Daily average	532	469	474	471	494	476	
Month	16,492	13,132	14,694	14,130	15,314	14,280	88,042
Miscellaneous—							
Daily average	46	114	118	110	119	111	
Month	1,426	3,192	3,658	3,300	3,689	3,330	18,595
CARTER COUNTY:							
Healdton—							
Daily average	9,475	9,449	9,524	9,380	8,825	8,513	
Month	293,725	264,572	295,244	281,400	273,575	255,390	1,663,906
Hewitt—							
Daily average	4,031	4,168	4,268	4,114	3,704	3,625	
Month	124,961	116,704	132,308	123,420	114,824	108,750	720,967
Sholem-Alechem—							
Daily average	2,918	3,082	2,959	2,902	2,654	2,588	
Month	90,458	86,296	91,729	87,060	82,274	77,640	515,457
Wildcat Jim—							
Daily average	1,810	1,788	1,603	1,405	1,379	1,362	
Month	56,110	50,064	49,693	42,150	42,749	40,860	281,626
Tussey—							
Daily average	4,284	3,960	2,208	1,490	1,551	1,526	
Month	132,804	110,880	68,448	44,700	48,081	45,780	450,693
Tatums—							
Daily average	2,274	2,318	2,114	2,309	2,056	2,018	
Month	70,494	64,904	65,534	69,270	63,736	60,540	394,478
Graham-Fox—							
Daily average	3,515	2,790	3,270	3,114	2,786	2,767	
Month	108,965	78,120	101,370	93,420	86,366	83,010	551,251
Brock—							
Daily average	262	290	293	299	281	277	
Month	8,122	8,120	9,083	8,970	8,711	8,310	51,316
Miscellaneous—							
Daily average	154	161	163	177	170	168	
Month	4,774	4,508	5,053	5,310	5,270	5,040	29,955
STEPHENS AND COTTON COUNTIES:							
Duncan district—							
Daily average	1,836	2,088	2,013	2,197	2,210	2,190	
Month	56,916	58,464	62,403	65,910	68,510	65,700	377,903
Loco-Milroy—							
Daily average	1,106	1,093	1,081	965	899	896	
Month	34,286	30,604	33,511	28,950	27,869	26,880	182,100
Velma—							
Daily average	688	771	807	780	683	704	
Month	21,328	21,588	25,017	23,400	21,173	21,120	133,626
Walters—							
Daily average	1,077	985	1,048	952	1,013	994	
Month	33,387	27,580	32,488	28,560	31,403	29,820	183,238
Comanche—							
Daily average	660	691	719	624	610	613	
Month	20,460	19,348	22,289	18,720	18,910	18,390	118,117
Miscellaneous—							
Daily average	309	311	331	314	298	289	
Month	9,579	8,708	10,261	9,420	9,238	8,670	55,876
JEFFERSON COUNTY:							
Daily average	3,416	3,353	3,059	3,046	2,768	2,793	
Month	105,896	93,884	94,829	91,380	85,808	83,790	555,587
GARVIN COUNTY:							
Daily average	1,118	1,103	1,109	1,082	1,089	990	
Month	34,658	30,884	34,379	32,460	33,759	29,700	195,840
GRADY COUNTY:							
Daily average	1,451	1,587	1,638	1,491	1,671	1,615	
Month	44,981	44,436	50,778	44,730	51,801	48,450	285,176
MARSHALL COUNTY:							
Daily average	156	186	187	182	178	177	
Month	4,836	5,208	5,797	5,460	5,518	5,310	32,129
CADDO COUNTY:							
Daily average	3,635	3,818	3,774	3,373	3,082	3,062	
Month	112,685	106,904	116,994	101,190	95,542	91,860	625,175
TILLMAN COUNTY:							
Daily average	998	1,072	1,029	978	712	713	
Month	30,938	30,016	31,899	29,340	22,072	21,390	165,655
COMANCHE COUNTY:							
Daily average	8	7	5	.....	6	.....	
Month	248	196	155	.....	186	.....	785
JACKSON COUNTY:							
Daily average	1,037	988	987	940	778	766	
Month	32,147	27,664	30,597	28,200	24,118	22,980	165,706
CLEVELAND COUNTY:							
Moore—							
Daily average	7,371	5,949	4,913	4,273	5,157	3,981	
Month	228,501	166,572	152,303	128,190	159,867	119,430	954,863
COAL COUNTY:							
Daily average	238	151	169	174	145	142	
Month	7,378	4,228	5,239	5,220	4,495	4,260	30,820
Daily average	537,691	512,195	506,460	487,012	441,901	424,060	484,758
First six months 1938	16,668,421	14,341,456	15,700,260	14,610,360	13,698,931	12,721,800	87,741,228
First six months 1937	17,914,063	16,942,744	19,736,150	19,983,090	20,067,075	19,265,610	113,908,732
First six months 1936	15,285,945	14,824,626	16,518,133	16,786,560	17,432,571	16,859,610	97,707,445
First six months 1935	14,926,779	13,668,956	15,401,358	15,345,660	16,012,244	15,674,610	91,029,607
First six months 1934	15,053,166	13,345,276	15,166,471	15,370,880	16,060,480	16,127,550	91,123,782

A Hook that is truly

SAFE

B-M-W NEILSON

Safety Sucker Rod Hook

Ball Bearing enclosed in Grease-Packed Bail

This rugged hook assures 100% safety because of its very simple and dependable latch arrangement combined with a free-swiveling and grease-packed bail. Two sizes for rods—one size for tubing.

Circular on Request

WHERE STOCKED?

Leading supply stores carry B-M-W Products in stock, including: ● ADMORE Insert Pump Anchors; ● NEILSON Tools (Safety Sucker Rod Hooks, Tubing Hooks, Rod Elevators, Sucker Rod Sockets, etc.); ● BALLS and SEATS (made for every pumping service) ● ADMORE Liner Barrels; ● TEX TYPE Plunger Fittings and Valves; and ● COLLINS Belt Clamps.

BRADFORD MOTOR WORKS INC.

OIL WELL SUPPLIES

BRADFORD, PA. — TULSA, OKLA.

HAVE YOU RENEWED YOUR JOURNAL SUBSCRIPTION?

Semi-Annual Review

OPEN 23 POOLS IN SOUTHWEST TEXAS; NEW PAYS, POOL EXTENSIONS

By F. L. SINGLETON

Operators in the Southwest Texas district during the first six months of 1938 witnessed a successful period of development as 23 new pools were discovered and the potentiality of several older fields was enlarged by new sand discoveries or important extensions.

There were 1,249 wells drilled which is a decrease of 315 from the same period of last year. Of this total 351 were dry holes and 58 gas wells. Total production was 39,704,660 bbls., a decrease of 504,208 bbls. which was due to the Saturday and Sunday shutdowns during May and June.

The outstanding achievements took place in Jim Wells and Duval counties where three discoveries opened a new type of trend play for the Jackson Trend. Five miles southwest of Alice, in the Lavaca Grant, Jim Wells County, H. H. Howell completed No. 1 Lindsay and Reed in March as the first oil well from the South Alice field, which was originally discovered earlier in the year as a gas field. Production was obtained by perforating the casing in the Frio formation at 5,375-5,425 feet, and the well flowed an initial production of 177 bbls. of 44-gravity oil daily through a one-eighth inch choke. This has provided the Jackson Trend with its second Frio producing field, and has started an active wildcatting play, northeasterly and southwesterly through the adjoining counties.

Duval Discoveries

The opening of the Fitzsimmons and De Soto fields in Duval County has intensified an already active wildcatting campaign throughout the eastern half of the county. H. J. Porter No. 1 Fitzsimmons, J. Poitevent Survey No. 291, flowed 108 bbls. of 47-gravity oil per day through a 5/32-inch choke with tubing pressure 360 pounds and casing pressure 1,120 pounds. The hole is bottomed at 4,303 feet with 7-inch casing cemented at 4,292 feet. Additional development has uncovered a shallower sand, and the structure shows evidence of being the same type of field as the Benavides field, opened last year as the Laredo district's first Pettus sand field, and started a deeper drilling campaign along the trend which extends northeasterly and southwesterly.

Approximately 15 miles south and on the same trend, Arkansas Fuel Oil Co. added the third Pettus sand field with the discovery of the De Soto field, 5 miles southwest of San Diego, in Survey No. 96. The well was drilled on the Cuellar Brothers lease, and was completed through perforated casing at 5,109-17 feet, for an initial production of 78 bbls of 43.4-gravity oil, plus 10 per cent salt water.

In the same county, and along the shallow Laredo-Pettus trend, two small fields were developed. Magnolia Petroleum Co. opened the Casa Blanca field with No. 1 Duval County Ranch Co. which made an initial production of 37 bbls. of oil in 12 hours pumping. The hole is bottomed in Cole sand at 1,190 feet, and casing was cemented on top of the sand at 1,185 feet. The field is 2 miles northwest of Freer, and 1 mile southeast of the Charamousca field, section 291.

West of the Seven Sisters field, "Los Piachos" was discovered by Schimmel and others with No. 5 Hagist which pumped 51 bbls. of fluid per day of which 50 per cent was salt water. The completion was made in sand at 2,193-96 feet. Location is in the B.S.&F. Survey No. 265.

An important extension was made for the Loma Alto field, McMullen County, by Alabama Minerals No. 3 Margaret Gordon, 1⅛ miles northeast of the field in section 28. Completion was in Hockleyensis sand at 2,276-90 feet, and the well pumped 2 bbls. per hour.

Revival of Mirando

New development was started in the old Mirando Valley field, Zapata County, following the opening of a new sand by Burt Calvin No. 1 Lopez, due east of the field. Sand at 1,873-81 feet flowed 150 bbls. of 21-gravity oil daily through a three-eighths inch choke. Location is in section 253.

Additional development for the Barbacoas field, Starr County, was assured following the completion of Henshaw & Davis No. 1 Garcia, which flowed 1 bbl. of oil per hour through one-eighth inch choke, from perforated casing at 2,662-69 feet. The well is several thousand feet north of production and may prove to be a new field, although it has not been classified as such.

Two shallow gas fields were opened in the Laredo district. Fourteen miles north of Rio Grande, Starr County, Sun Oil Co. No. 1 Young, J. Cisneros Survey No. 79, produced dry gas after perforating casing at 2,710-20 feet.

In Webb County, Nessley and others No. 3-A Bruni, Survey 449, flowed an unestimated amount of dry gas through perforated casing at 1,804-08 feet.

In Jib Hogg County, the Las Animas gas field was converted into an oil field with the completion of Darby Petroleum Co. No. 2-B Holbein. Completion was through perforated casing at 1,819-22 feet. Location is in section 7, Block 70, of the Las Animas Grant.

Two Distillate Fields Added

Two distillate fields were added to the Rio Grande Valley district. In the eastern part of Hidalgo County, Atlantic Refining Co. opened the Weslaco field with No. 1 American Rio Grande. The completion was made in the Frio formation through perforated casing at 8,634-42 feet and the well flowed 71 bbls. of 51-gravity distillate. The well was shut in and no new development started. Six miles west of the La Blanca field, Hidalgo County, Gulf States Oil Co. No. 1 Josefa Cardenas, opened the San Salvador field when it flowed 159 bbls. of 56-gravity distillate and 114 bbls. of connate water daily through a three-eighths inch choke. The hole was drilled to the Frio at 7,963 feet and the well was completed through perforated casing at 7,930-45 feet.

East White Point

The outstanding discovery in the Corpus Christi district was the opening of the East White Point field, San Patricio County, by Plymouth Oil Co. No. 1 Brigham, section 52, Pauls Subdivision of the Coleman Fulton Pasture Co. lands. It was completed in the Frio formation through perforated casing at 5,661-64 feet for an initial production of 9 bbls. of 38.3-gravity oil per hour through a 9/64-inch choke. The structure is controlled mainly by Plymouth Oil Co. which has completed 12 producers, and is developing the field on a 20-acre spacing basis.

In the same county and 2½ miles east of the Plymouth field, Humble Oil & Refining Co. opened the East White Point gas field with No. 1 Smith and Tolbert, in the Greta sand, through perforated casing at 4,808-10 feet. The well flowed an estimated 1,225,000 feet of gas through a 5/32-inch choke. A drill stem test of this section showed several hundred feet of pipe line oil, but showed salt water when given a production test, resulting in the hole being plugged back and completed as a gasser.

Also in San Patricio County the completion of the first oil well in the White Point gas field was made by J. K. Culton No. 1 White Point Development Co. Oil sand was logged at 4,910-61 feet and the well flowed 50 bbls. of oil through a 5/32-inch choke.

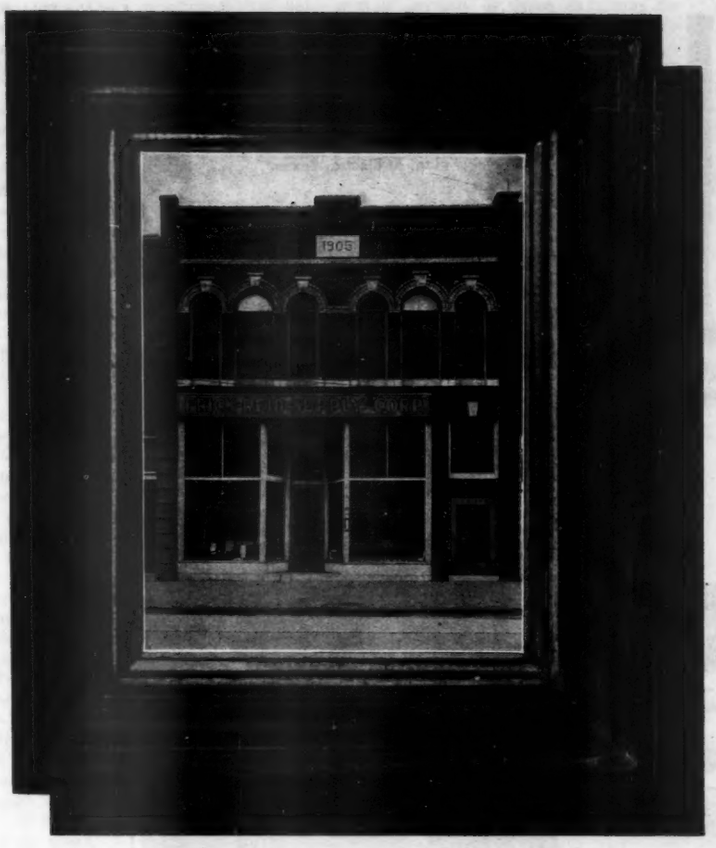
New Finds in Nueces

In Nueces County, L. A. Douglas opened the West Saxet field with the completion of No. 1 Charles McKenzie, B.S.&F. Survey, about 7½ miles northwest of the Saxet field. Saturation was cored in the Frio formation at 5,810-12 feet where the well was completed for an initial production of 360 bbls. of 35-gravity oil through a quarter-inch choke. Phillips Petroleum Co. purchased the holdings of L. A. Douglass for a cash consideration and started an extensive drilling campaign. Although two additional producing horizons have been developed at 5,649-53½ feet and at 3,846-50 feet, production has been confined to a small area and interest in the field has waned considerably.

Deeper drilling in the Saxet field, Nueces County, was responsible for new producing horizons. J. K. Culton No. 4 Baldwin, Block 20, J. C. Russell Farm Lots, flowed 100 bbls. of oil and some salt water from a new sand at 5,157-64 feet. In the southwest part

SOUTHWEST TEXAS NEW DISCOVERIES FIRST HALF 1938

Field and county—	Discovery well:	Date of completion	No. well comp.	Initial production:
Alfred, Jim Wells	Rowan & Hope No. 1 Adams	2-26-38	3	3 bbls. per hour, 5/32-inch choke.
Casa Blanca, Duval	Magnolia Petroleum Co. No. 1 Duval Co. Ranch	6- 2-38	2	37 bbls., pumping; 12 hours.
Dunlay, Medina	Ewing Oil Co. No. 1 Riff	4-18-38	1	80 bbls., pumping; 24 hours.
E. White Pt., San Patricio	Plymouth Oil Co. No. 1 Brigham	2-26-38	12	9 bbls. per hour; 9/64-inch choke.
E. Plymouth, San Patricio	Humble Oil & Refining Co. No. 1 Smith-Tolbert	5-17-38	1	1,225,000 feet of gas; 5/32-inch choke.
De Soto, Duval	Arkansas Fuel Oil Co. No. 1 Cuellar	6-24-38	1	78 bbls. oil, plus 10 per cent salt water; ⅝-inch choke.
E. Telferner, Victoria	W. V. Bowles No. 1 Robertson	1-26-38	3	20 bbls. per hour; ½-inch choke.
Fitzsimmons, Duval	H. J. Porter No. 1 Fitzsimmons	5-28-38	2	108 bbls. per day; 5/32-inch choke.
LaCoste, Bexar	R. W. Fair No. 1 Medina Irrigation	1-28-38	3	15 bbls. per day; pumping.
Loma Valdez, Webb	Nessly and others No. 3 Bruni	1- 7-38	1	Unestimated gauge; dry gas.
N. Agua Dulce, Nueces	Union Prod. Co. No. 1 Simmons	2- 4-38	2	Flowed distillate; shut in.
Los Piachos, Duval	Schimmel No. 5 Hagist	4-12-38	1	51 bbls. fluid, 50 per cent salt water; pumping.
Mitchell Lake, Bexar	Luling Oil & Gas Co. No. 1 Russell	5-20-38	1	38 bbls. fluid, 8 hours; 60 per cent water; pumping.
North Normanna, Bee	Dirks Brothers No. 1 Beck	2-18-38	1	60 bbls. per day; 5/32-inch choke.
Rockdale, Burleson	Red Bank Oil Co. No. 1 Coffield		1	150 bbls. fluid, various amount of salt water; pumping; testing.
Riddle, Bastrop	Ogden and Riddle No. 1 Riddle	6-24-38	1	35 bbls. per day; pumping.
South Alice, Jim Wells	H. H. Howell No. 1 Lindsay & Reed	4-22-38	13	177 bbls. per day; ⅛-inch choke.
San Salvador, Hidalgo	Gulf States Oil Co. No. 1 Cardenas	4-22-38	1	159 bbls. distillate, 159 bbls. water per day; ⅝-inch choke.
Ramerina, Live Oak	Hantho-Nelson No. 1 McNeil	3-11-38	1	225,000 feet of gas per day; 5/32-inch choke.
West Saxet, Nueces	L. A. Douglas No. 1 McKenzie	1- 8-38	27	360 bbls. per day; ¾-inch choke.
Weslaco, Hidalgo	Atlantic Refining Co. No. 1 American Rio Grande	2-11-38	1	71 bbls. distillate; various chokes.
Walnut Creek, Caldwell	Fred Shield No. 1 Walker	6-24-38	1	74 bbls. per day; pumping.
Rio Grande, Starr	Sun Oil Co. No. 1 Young	6-16-38	1	Dry gas well; no gauge.



There is Only ONE Frick-Reid Store

Originally there was ONE Frick-Reid Store. Customers liked the way it functioned. It seemed interested in nothing but their requirements and it was a real asset. It still is. After 33 years it does business at the same address. Customers who bought equipment there in 1905 can get repair parts today.

There is still only ONE Frick-Reid Store—the one in your field. It is interested solely in your requirements. It is fully empowered to give you the same co-operation that has made the first Frick-Reid Store indispensable for more than three decades. It wants to be a real asset to the community, and is. Every purchase you make there is a vote for constructive, dependable local service.

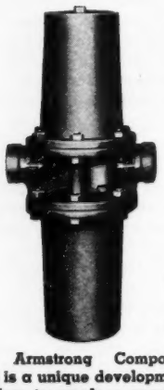
FRICK-REID SUPPLY CORPORATION

PITTSBURGH, PA. TULSA, OKLA.

Equipment Suppliers Exclusively — Branches in Old and New Fields

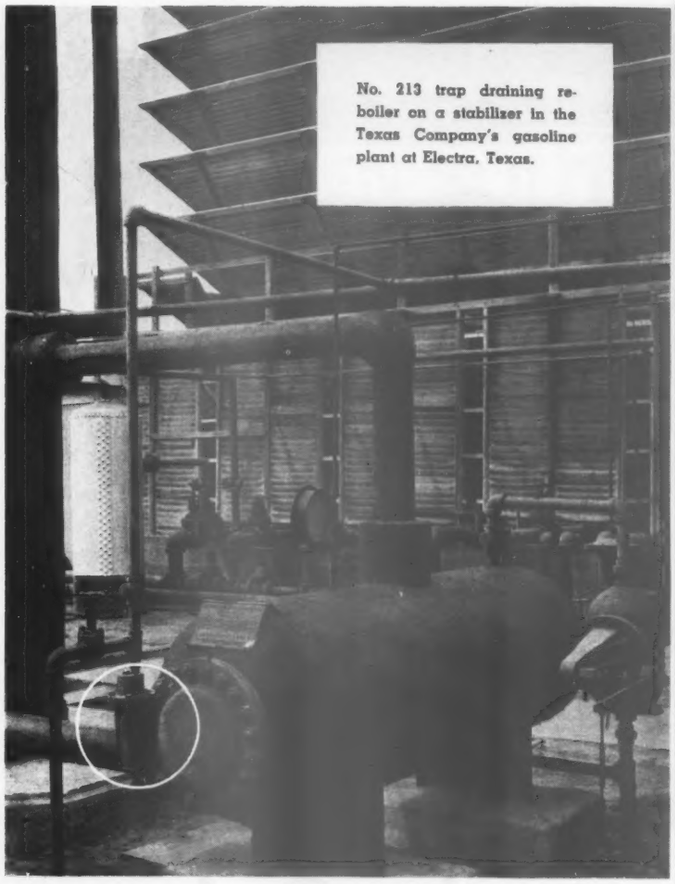
Standard Armstrong cast semi-steel traps are offered in seven graduated sizes for pressures up to 250 lbs. gage. All have the genuine inverted bucket mechanism.

Armstrong forged steel traps are built in standard sizes for steam pressures of 600, 900 or 1500 lbs. gage with screwed or flanged connections. Traps for higher pressures are built on order.



The Armstrong Compound Trap is a unique development. It offers tremendous capacity in a unit that is amazingly simple in construction. Available in cast semi-steel or forged steel in three sizes.

The Armstrong Special Trap is favored for installations where the pressure fluctuates as on lines supplying reciprocating engines.



No. 213 trap draining reboiler on a stabilizer in the Texas Company's gasoline plant at Electra, Texas.

Traps for Reboilers

ARMSTRONG Steam Traps have long been used as standard equipment for reboilers of virtually every make, size and type. There are good reasons for this choice:

1. FREEDOM FROM TROUBLE. Only two moving parts. No narrow openings to get clogged up. Nothing that can collapse. Very little wear.

2. QUICK DRAINAGE. No lag in discharging condensate. Heating coils keep dry and up to maximum efficiency.

3. COMPLETELY AUTOMATIC. Nothing to adjust or set. No gage glasses to watch. No petcocks to open.

4. BIG CAPACITY. Your dollar buys less dead weight and more real capacity in an Armstrong Trap. Get our capacity chart.

5. WORLD WIDE SERVICE. You are never very far from an Armstrong Representative and a stock of Armstrong traps.

Ask for a copy of our catalog. ARMSTRONG MACHINE WORKS, 868 Maple Street, Three Rivers, Mich.

ARMSTRONG TRAPS

Automatic Drainage for

REFINERIES · GAS PIPE LINES · DRILLING RIGS

of the field, Sultex Oil Co. No. 1-B Taggart flowed 46 bbls. of oil through a 9/64-inch choke from a deep sand at 6,835-41 feet.

One mile west of Banquete, Nueces County, Union Producing Co. opened the North Agua Dulce pool when No. 1 Simmons was completed as a distillate producer through perforated casing at 4,810-35 feet. The hole was drilled to 8,710 feet before plugging back.

In the Clara Driscoll field, Stanolind Oil & Gas Co. No. 1 Kampfhenkel, opened a new sand at 5,325-40 feet. In the same county and located in the Stratton field, Camp Production Co. No. 4 Wardner, section 16, flowed 163 bbls. of 54-gravity oil from a new sand at 6,273-6,300 feet.

In the Agua Dulce field, Union Producing Co. completed its first oil well, No. 1 J. W. Torbett, which flowed 480 bbls. of 40-gravity oil daily through quarter-inch choke. The hole was drilled to 7,700 feet and the completion was made through perforated casing at 5,295-5,307 feet. Location is on the west side of the field in section 31 of the Benton Pasture Subdivision. Development of the Flour Bluff field was extended into Laguna Madre Bay where Sinclair Prairie Oil Co. and Humble Oil & Refining Co. are developing state leases.

The North Normanna field, Bee County was discovered by Dirks Brothers when No. 1 Magnus Beck, section 17 of the J. M. Urangas Grant, flowed 60 bbls. per day through a 5/32-inch choke with tubing pressure 300 pounds and casing pressure 625 pounds. The well is producing from the Pettus sand through perforated casing at 5,215-23 feet.

In Jim Wells County, Rowan & Hope opened the Alfred field with the drilling of No. 1 Robert Adams into the Pettus sand at 3,225-29 feet. The well flowed 3 bbls. of 47.2-gravity oil per hour through a 5/32-inch choke with tubing pressure 110 pounds and casing pressure 290 pounds. The discovery resulted in a number of tests being drilled in every direction from the well, but only two additional producers were completed.

Along the Upper Gulf Coast district and located in Victoria County, W. V. Bowles No. 1 Robertson, Thomas Burnham Survey, opened the East Telferner field when it flowed 20 bbls. of pipe line oil per hour through a quarter-inch choke from sand at 5,100-14 feet. The well was drilled on a block of about 2,500 acres located 5 miles from the Keeran field and 10 miles northwest of the Placedo field. The producing sand has proven to be erratic and production is not expected to be extended over a wide area.

SOUTHWEST TEXAS

Summary of Wells Completed First Half of 1938

Field—	Comp.	Prod.	Dry	Gas
Agua Dulce	8	152	1	3
Alfred	6	557	3	0
Alice (South)	8	913	1	1
Alta Mesa	9	1,508	1	0
Alworth	3	5	0	2
Alta Verde	2	0	2	0
Amagosa	1	0	0	1
Barbacoas	1	48	0	0
Batesville	1	0	1	0
Benavides	94	12,144	5	5
Branyon	22	1,451	5	0
Buchanan	3	25	1	0
Burdette Wells	6	362	0	0
Burnell (South)	13	1,215	3	1
Bruni	1	0	1	0
Byersville	1	25	0	0
Casa Blanca	1	37	0	0
Calliham	5	55	1	0
Chittim	2	30	0	1
Clara Driscoll	1	124	0	0
Cole	2	0	2	0
Colmena	3	28	0	1
Comitas	4	137	0	0
Charco Rendondo	2	0	2	0
Colorado	2	315	0	0
Chacon Lake	5	7	0	0
Charamousca	2	188	0	0
Carolina-Tex	1	0	1	0
Cuellar	1	78	0	0
Dale	16	442	7	0
Darst Creek	13	1,006	0	0
Dunlap	8	177	1	0
Driscoll	3	134	0	0
Dunlay	3	73	0	0
East Premont	1	480	0	0
Escobas	9	206	1	0
Ezzell	44	2,934	6	1
Eagle Hill	1	40	0	0
East Telferner	3	261	0	0
East White Point	11	1,619	2	0
East Placedo	1	154	0	0
East Plymouth	2	0	1	1
Flour Bluff	19	1,670	6	1
Fox	1	156	0	0
Fitzsimmons	1	108	0	0
Government Wells	1	47	0	0
Heyser	60	9,518	0	1
Hoffman	37	2,400	3	1
Hughes	2	0	2	0
Ina	1	10	0	0
Jacob	1	6	0	0
Keeran	2	525	0	1
Killam	22	1,275	5	0
Kingsville	3	0	3	0
Labbe	5	0	3	2
Lablanca	1	90	0	0
Las Animas	3	99	1	1
Loma Alta	1	5	0	0

Field—	Comp.	Prod.	Dry	Gas
Loma Novia	1	0	1	0
Loma Valdez	1	0	0	1
Lost Mule	1	0	1	1
Luby	43	5,344	3	0
Luling	47	5,833	3	1
Lundell	20	2,126	0	0
Lytton Springs	2	5	1	0
Lucas	1	0	0	1
Lacoste	1	51	0	0
Las Piachos	1	51	0	0
Los Olmos	1	0	1	0
Lopez	1	0	1	0
McCampbell	25	3,950	0	0
McFaddin	14	1,420	0	1
Mirando Valley	7	703	0	1
Mercedes	2	190	0	0
Maetze	1	0	0	1
Mestenas	1	159	0	0
Mitchell Lake	1	35	0	0
Normanna	2	0	2	0
North Pettus	1	40	0	0
North Agua Dulce	1	0	0	1
North Normanna	1	60	0	0
Nash Creek	2	0	2	0
O'Hern	10	252	3	1
Oilton	64	6,612	9	5
Pearsall	2	126	0	1
Piedre DeLumbre	17	1,533	2	0
Placedo	6	387	2	1
Plymouth	13	2,053	1	0
Peters	3	0	1	2
Plummer	3	144	1	1
Premont	4	140	1	1
Piedra Pintas	1	0	1	0
Refugio	17	2,600	4	0
Rhodes	4	0	1	3
Rincon	1	0	0	1
Richard King	5	341	0	0
Rockdale	10	57	0	0
Ramirena	1	0	0	1
Ricaby	1	0	0	1
Rutledge	1	0	1	0
Salt Flat	14	978	0	0
Samfordyce	9	726	1	2
Sarco Creek	1	34	0	0
Saxet	38	3,128	7	2
Seven Sisters	27	2,788	5	0
Stratton	3	353	0	0
Sweden	2	19	0	1
Sarnosa	2	35	1	0
San Domingo	1	0	0	1
South Calliham	2	25	1	0
South Clara Driscoll	4	686	0	0
Somerset	1	10	0	0
Taft	4	623	0	1
Tomoconnor	49	38,648	0	0
Telferner	1	0	1	0
Von Ormy	10	57	0	0
West Saxet	36	6,798	7	0
Weslaco	1	62	0	0
West Tuleta	1	0	1	0
West Dunlap	1	10	0	0
White Point	1	50	0	0
Miscellaneous	215	0	214	1
Total	1,249	132,081	351	58

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	206	24,558	55	19
February	199	21,000	57	7
March	241	23,296	73	6
April	214	21,572	62	14
May	184	23,188	42	6
June	205	18,467	62	6
Total	1,249	132,081	351	58
Same period 1937	1,566	192,610	424	73
Difference	317	60,529	73	15

New Sand in Refugio

In the Refugio field, Refugio County, South Oil Co. opened a new sand at 6,500 feet with the completion of No. 1-A Ryals, which flowed 188 bbls. per day through a 5/32-inch choke. This sand had been cored in several wells, but was thought to have carried distillate.

Hantho-Nelson opened the Ramirena field, Live Oak County, with the completion of No. 1 Alma McNeil which was completed for a gas well in the Cockfield formation through perforated casing at 5,078-79 feet. No new development has been started in the field which is located 4 miles south of the county line in the Alexander Parks Survey.

Drilling activity along the Balcones Fault Line district uncovered seven small pools. In Bexar County, R. W. Fair opened the LaCoste field with No. 1 Medina Irrigation Farm which pumped 15 bbls. of 32-gravity oil per day from a lime formation at 1,150-90 feet. The field is located 4 miles southwest of Macdona in the H. Pickens Survey.

Approximately 5½ miles northwest of Red Rock in the Henry Warnell Survey, Bastrop County, Ogden & Riddle opened the Riddle field from the Dale formation at 1,770-85 feet. On a potential gauge the well pumped 35 bbls. of pipe line oil per day.

Edwards Lime Discovery

The completion of Red Bank Oil Co. No. 1 H. H. Coffield, in Burleson County, is looked upon generally as the forerunner of an important Edwards lime pool discovery. Saturation was cored in the lime at 6,170-71 feet and the well flowed at the rate of 25 bbls. of fluid per hour while cleaning out. It started making salt water and had to be placed on the pump within four days after completion. The company has not officially completed the well and it is pumping approximately 150 bbls. of fluid per day of which 60 per cent is oil and the balance water. This is the third test in the area which is south of the town of Rockdale in the E. Soute Survey.

In Bexar County, Luling Oil & Gas Co. opened the Mitchell Lake field from the Austin Chalk when No. 1 Russell pumped 38 bbls. of oil and 115 bbls. of water from the Chalk topped at 1,116 feet and bottomed at 1,180 feet. Location is in the Fernando Rodriguez Survey.

South of Lytton Springs, Caldwell County, Fred Shields No. 1 Walker, Pablo Martinez Survey, cored saturated sand in the Serpentine at 1,320-35 feet, total depth, where it was completed on the pump for 74

SOUTHWEST TEXAS
(Lower Gulf Coast)

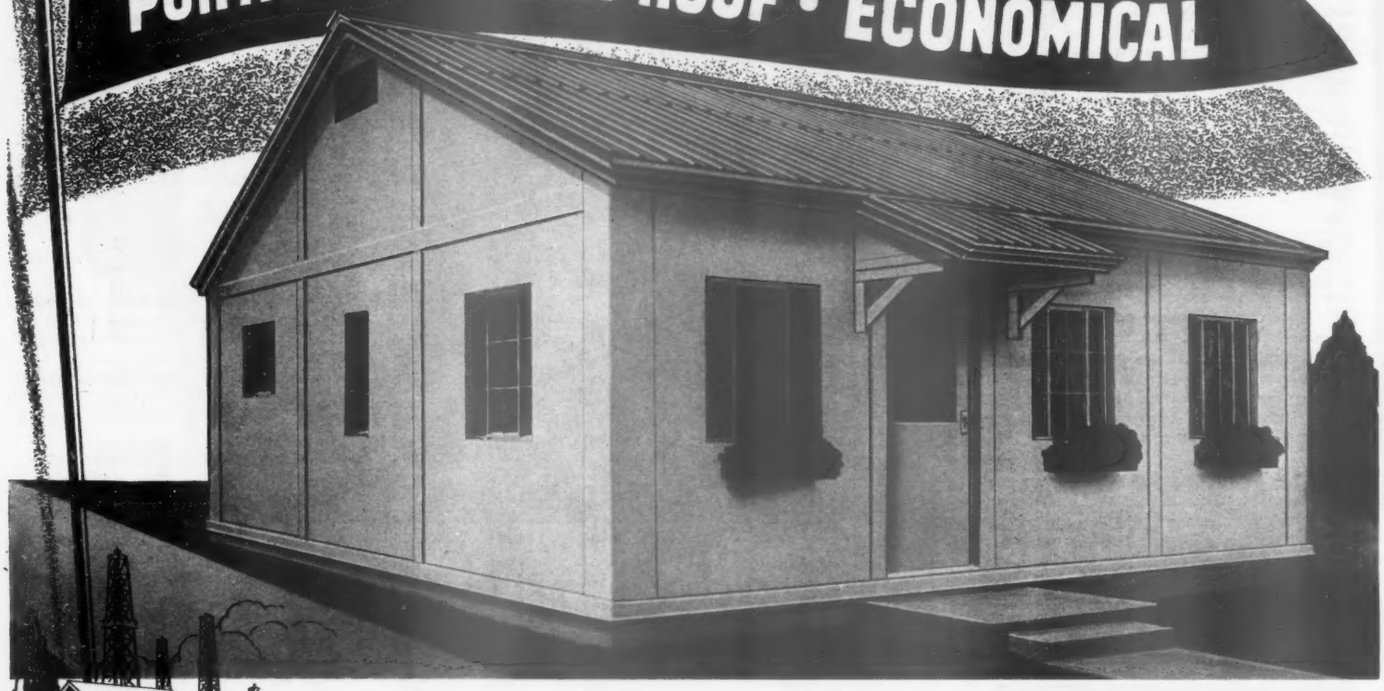
Daily Average and Monthly Production in First Six Months of 1938

	January (bbls.)	Februar./ (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Ttl. 6 mos. (bbls.)
ALICE—SOUTH:							
Daily average	.....	.....	.....	60	75	766	
Month	.....	.....	.....	1,800	2,325	22,980	27,105
AGUA DULCE:							
Daily average	403	696	581	551	480	501	
Month	12,493	19,508	18,011	16,530	15,159	15,030	96,731
BALDWIN:							
Daily average	283	226	262	356	302	333	
Month	8,773	6,328	8,122	10,680	9,362	9,990	53,255
BENTONVILLE:							
Daily average	443	360	409	390	376	386	
Month	13,733	10,080	12,679	11,700	11,656	11,580	71,428
CAESAR:							
Daily average	310	249	246	273	309	279	
Month	9,610	6,972	7,626	8,190	9,579	8,370	50,347
COLLETTO CREEK:							
Daily average	482	421	450	381	512	443	
Month	14,942	11,788	13,950	11,430	15,872	13,290	81,272
FLOUR BLUFF:							
Daily average	5,319	4,862	4,980	5,105	4,619	4,226	
Month	164,889	136,136	154,380	153,150	143,189	126,780	878,524
GRETA:							
Daily average	8,324	7,691	7,850	7,740	5,052	6,315	
Month	258,044	215,348	243,350	232,200	156,612	189,450	1,295,004
HEYSER:							
Daily average	7,096	6,950	7,514	8,300	7,910	8,416	
Month	219,976	194,600	232,934	249,000	245,210	252,480	1,394,200
KEERAN:							
Daily average	540	511	498	528	512	429	
Month	16,740	14,308	15,438	15,840	15,872	12,870	91,068
LUBY:							
Daily average	1,493	2,021	2,480	2,980	3,116	3,490	
Month	46,283	56,588	76,880	89,400	96,596	104,700	470,447
McCAMPBELL:							
Daily average	4,622	5,113	5,302	5,489	5,008	4,647	
Month	143,282	143,164	164,362	154,670	155,248	139,410	900,136
McFADDIN-O'CONNOR:							
Daily average	234	334	816	1,059	1,010	1,070	
Month	7,254	9,352	25,296	31,770	31,310	32,100	137,082
MIDWAY:							
Daily average	370	412	547	650	516	620	
Month	11,470	11,536	16,957	19,500	15,996	18,600	94,059
NORTH PETTUS:							
Daily average	715	508	1,246	1,124	1,251	1,167	
Month	22,165	14,224	38,626	33,720	38,781	35,010	182,526
PETTUS:							
Daily average	1,304	1,231	610	606	674	613	
Month	40,424	34,448	18,910	18,180	20,894	18,360	151,216
PLACEDO:							
Daily average	8,665	8,593	9,019	9,108	8,451	7,839	
Month	268,615	240,604	279,589	273,240	261,981	235,170	1,559,199
PLACEDO—EAST:							
Daily average	.....	.....	118	183	176	224	
Month	.....	.....	3,658	5,490	5,456	6,720	21,324
PLUMMER:							
Daily average	202	233	227	214	202	200	
Month	6,262	6,524	7,037	6,420	6,262	6,000	38,505
PLYMOUTH:							
Daily average	11,764	12,398	13,716	13,836	12,516	11,489	
Month	364,684	347,144	425,196	415,080	387,996	344,670	2,284,770
PREMONT:							
Daily average	423	471	630	703	770	715	
Month	13,113	3,188	19,530	21,090	23,870	21,450	102,241
RAY:							
Daily average	465	426	445	389	356	326	
Month	14,415	11,928	13,795	11,670	11,036	9,780	72,624
REFUGIO:							
Daily average	5,812	5,725	5,785	5,393	4,860	4,742	
Month	180,172	150,300	179,335	161,790	150,660	142,260	964,517
SAXET:							
Daily average	35,635	33,310	34,409	34,081	32,235	29,248	
Month	1,104,685	932,680	1,066,679	1,022,430	999,285	877,440	6,003,199
SAXET HEIGHTS:							
Daily average	3,850	3,898	3,286	2,912	2,859	2,659	
Month	119,350	209,144	101,866	87,360	88,629	79,770	686,119
SEVIER:							
Daily average	688	968	1,124	1,104	1,014	842	
Month	21,328	27,104	33,844	32,120	31,434	25,260	172,090
STRATTON:							
Daily average	264	209	303	297	214	246	
Month	8,184	5,852	9,393	8,910	6,634	7,380	46,353
SOUTH BURNELL:							
Daily average	938	940	907	999	898	867	
Month	29,078	26,320	28,117	29,970	27,838	26,010	167,333
TAFT:							
Daily average	2,514	2,327	2,446	2,593	2,192	1,990	
Month	77,934	65,156	75,826	71,290	67,952	59,700	417,858
TOMOCONNOR:							
Daily average	11,278	10,648	11,284	11,904	11,897	12,312	
Month	349,618	298,144	349,804	357,120	368,807	369,360	2,092,853
WEST SAXET:							
Daily average	163	183	1,130	2,148	1,895	2,395	
Month	5,053	5,124	35,030	64,440	58,745	71,850	240,242
WEST TULETA:							
Daily average	369	546	505	417	404	369	
Month	11,439	15,288	15,655	12,510	12,524	11,070	78,486
WHITE POINT—EAST:							
Daily average	.....	.....	156	338	467	639	
Month	.....	.....	4,836	10,140	14,477	19,170	48,623
EAST PREMONT:							
Daily average	44	155	68	141	178	162	
Month	1,364	4,340	2,108	4,230	5,518	4,860	22,420
ALFRED:							
Daily average	.....	.....	149	183	145	121	
Month	.....	.....	4,619	5,490	4,495	3,630	18,234
MISCELLANEOUS:*							
Daily average	805	762	775	841	897	1,014	
Month	24,955	21,336	24,025	25,230	27,807	30,420	153,773
First six months 1938	3,590,327	3,254,556	3,727,463	3,684,780	3,545,067	3,362,970	21,165,153
First six months 1937	3,139,680	3,283,392	3,869,699	3,655,650	3,960,312	3,744,420	21,653,153

*Miscellaneous fields and their total production for the six months are: Alta Verde, 3,106 bbls.; Burnell, 217 bbls.; Chapman Ranch, 8,600 bbls.; Cordele, 8,507 bbls.; East Telferner, 12,196 bbls.; Foley, 3,983 bbls.; Greyburg, 124 bbls.; Kingsville, 8,541 bbls.; London, 9,738 bbls.; McNeil, 13,544 bbls.; Mt. Lucas, 16,397 bbls.; North Normanna, 3,786 bbls.; Normanna, 8,126 bbls.; North McFaddin, 5,562 bbls.; North Agua Dulce, 2,260 bbls.; Oakville, 2,357 bbls.; Premont, 10,627 bbls.; Sinton, 2,487 bbls.; Strauch, 388 bbls.; East White Point, 12,711 bbls.; Vanderbilt, 11,189 bbls.; Voss, 4,348 bbls.; Wade, 3,074 bbls.; Slick, 1,925 bbls. Total 153,773 bbls.

(Continued on Page 175)

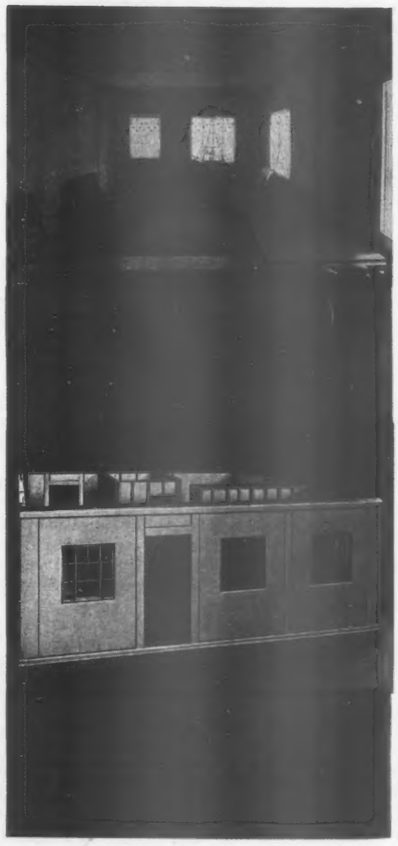
COLUMBIAN
METAL LEASE HOUSES ....
PORTABLE • FIREPROOF • ECONOMICAL



COLUMBIAN Metal Lease Houses give you the important *fire-proof* and *portable* features of steel construction *plus* a trim, neat attractiveness that makes them ideal for housing employees in oil fields, in camps or in pump stations.

The outside wall panels are all fabricated from 16 gauge steel and the windows installed directly in the panels. The columns are fabricated from 14 gauge steel and are bolted directly to the foundation. The panel sections slip in between these column sections with a one-inch insulating board built into the panel so that there is no cutting or fitting to do of any of the materials whatsoever on the job.

The insulating board fits into the panel sections so snugly that an area of absolute dead air space is created between the outer panel and the wall board. The dead air space is extra insulation against heat and cold. *WRITE* now for complete information.



COLUMBIAN READYFORMED WAREHOUSES ENGINE HOUSES and PUMP HOUSES

Fabricated from high grade galvanized steel, and carefully engineered to give lasting service. The frame is of angle iron construction and the roof is supported by angle iron trusses. Cross metal stays tie the roof trusses into a rigid unit, and to this is attached the Cloverleaf galvanized sheets used as roofing. They offer great protection against fire, both from within and without. Shipped knocked down in numbered sections and easily erected. Write at once for quotation on any type or size building you may require.

COLUMBIAN STEEL TANK CO.

P. O. BOX 4226-G KANSAS CITY, MO.

bbls. per day. The field has been named Walnut Creek and several tests have been started.

Northeast of Sullivan, Samuel Highsmith Survey, Guadalupe County, H. J. Spiller opened a small Austin Chalk field with the completion of No. 1 Wright. The Chalk was cored to a total depth of 2,167 feet and the completion was made after cementing 7-inch casing at 2,012 feet. On an initial gauge the well pumped 10 bbls. of oil and 4 bbls. of water per day.

Two miles southwest of Dunlay, Survey 42, Medina County, Ewing Oil Co. No. 1 E. G. Riff cored saturation in the Serpentine at 542-716 feet, the total depth, and the well pumped 80 bbls. of 20-gravity oil in 24 hours.

SOUTHWEST TEXAS
(Laredo District)

Daily Average and Monthly Production in First Six Months of 1938

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Ttl. 6 mos. (bbls.)
ALTA MESA:							
Daily average	420	412	423	509	464	482	
Month	13,020	11,536	13,113	15,270	14,384	14,460	81,783
AVIATOR:							
Daily average	339	332	350	369	287	260	
Month	10,509	9,296	10,850	11,070	8,897	7,800	58,422
CHARAMOUSCA:							
Daily average	341	244	273	265	239	230	
Month	10,571	6,832	8,463	7,950	7,409	6,900	48,125
COLE:							
Daily average	6,794	6,182	8,193	11,553	11,410	10,020	
Month	210,614	173,096	153,983	346,590	353,710	300,600	1,538,593
COLMENA:							
Daily average	356	281	275	301	285	260	
Month	11,036	7,868	8,525	9,030	8,835	7,800	53,094
COMITAS:							
Daily average	543	497	592	528	456	492	
Month	16,833	13,916	18,352	15,840	14,136	14,760	93,837
CUEVITAS:							
Daily average	593	497	651	674	691	608	
Month	18,383	13,916	20,181	20,220	21,421	18,240	112,361
DRISCOLL:							
Daily average	204	3,112	240	2,222	1,369	1,235	
Month	6,324	87,136	7,440	66,660	42,439	37,050	247,049
EAGLE HILL:							
Daily average	267	241	255	254	238	211	
Month	8,277	6,748	7,905	7,620	7,378	6,330	44,258
ESCOBAS:							
Daily average	2,021	1,978	1,888	1,851	1,579	1,457	
Month	62,651	55,384	58,528	55,530	48,949	43,710	324,752
EZZELL:							
Daily average	1,548	1,455	1,745	1,791	1,682	923	
Month	47,988	40,740	54,095	53,730	52,142	27,690	276,385
GOVERNMENT WELLS:							
Daily average	13,294	12,195	12,395	12,384	10,910	9,930	
Month	412,114	341,460	384,245	371,520	338,210	297,900	2,145,449
HOFFMAN:							
Daily average	2,389	2,127	2,371	2,531	2,354	2,247	
Month	74,059	59,556	73,501	75,930	72,974	67,410	423,430
IGNACIO:							
Daily average	97	128	184	265	254	251	
Month	3,007	3,584	5,704	7,950	7,874	7,530	35,649
JACOB:							
Daily average	372	497	610	712	518	467	
Month	11,532	13,916	18,910	21,360	16,058	14,010	95,786
KILLAM:							
Daily average	977	934	1,098	1,023	1,086	970	
Month	30,287	26,152	34,038	30,690	33,666	29,100	183,933
KOHLER:							
Daily average	139	142	153	134	250	127	
Month	4,309	3,976	4,743	4,020	7,750	3,810	28,608
LABBE:							
Daily average	323	282	284	281	247	225	
Month	10,013	7,896	8,804	8,430	7,657	6,750	49,550
LA BLANCA:							
Daily average	312	433	552	630	587	650	
Month	9,672	12,124	17,112	18,900	18,197	19,500	95,505
LOMA NOVIA:							
Daily average	15,059	13,743	14,024	14,787	12,974	11,370	
Month	466,829	384,804	434,744	443,610	402,194	341,100	2,473,281
LOPEZ:							
Daily average	6,902	6,479	6,711	6,584	5,981	5,412	
Month	213,962	181,412	208,041	197,520	185,411	162,360	1,148,706
LOS OLMOS:							
Daily average	113	120	118	121	96	50	
Month	3,503	3,360	3,658	3,630	2,976	1,500	18,627
McMULLEN:							
Daily average	174	155	194	162	158	148	
Month	5,394	4,340	6,014	4,860	4,898	4,440	29,946
MIRANDO VALLEY:							
Daily average	30	20	60	133	309	248	
Month	930	560	1,860	3,990	9,579	7,440	24,359
MOCA:							
Daily average	434	397	397	397	367	326	
Month	13,454	11,116	12,307	11,910	11,377	9,780	69,944
NORTH SWEDEN:							
Daily average	5,997	7,936	9,820	10,786	10,278	10,038	
Month	185,907	222,208	304,420	323,580	318,618	301,140	1,655,873
OILTON:							
Daily average	1,446	1,564	1,916	2,295	2,286	2,139	
Month	44,826	43,792	59,396	68,850	70,866	64,170	351,900
PIEDRA LUMBRE:							
Daily average	923	880	986	1,022	960	893	
Month	28,613	24,640	30,566	30,660	29,760	26,790	171,029
RANDADO:							
Daily average	327	264	282	293	204	190	
Month	10,137	7,392	8,742	8,790	6,324	5,700	47,085
RICABY:							
Daily average	304	314	278	202	329	179	
Month	9,424	8,792	8,618	6,060	10,199	5,370	48,463
SAMFORDYCE:							
Daily average	2,794	2,397	2,359	2,345	2,038	2,062	
Month	86,614	67,116	73,129	70,350	63,178	61,860	422,247
SARNOSA:							
Daily average	652	658	668	699	591	590	
Month	20,212	18,424	20,708	20,970	18,321	17,700	116,335
SCHOTT:							
Daily average	387	361	471	393	367	354	
Month	11,997	10,108	14,601	11,790	11,377	10,620	70,493
SEVEN SISTERS:							
Daily average	8,805	7,915	8,026	8,078	7,519	6,925	
Month	272,955	221,620	248,806	242,340	233,089	207,750	1,426,560
SWEDEN:							
Daily average	231	281	333	316	267	247	
Month	7,161	7,868	10,323	9,480	8,277	7,410	50,519
MISCELLANEOUS:*							
Daily average	642	679	614	788	744	778	
Month	19,902	19,012	19,034	23,640	23,064	23,340	127,992
Daily average	76,549	76,132	76,559	87,678	80,374	72,994	78,397
First six months 1938	2,373,019	2,131,696	2,373,459	2,630,340	2,491,594	2,189,820	14,189,928
First six months 1937	2,110,542	2,338,672	2,635,930	2,285,520	2,426,029	2,318,700	14,115,393

*Miscellaneous fields and their total production in the first six months were: Alberbacoas, 10,540 bbls.; Barbacoas, 1,849 bbs.; Carolina-Texas, 1,360 bbls.; Charco-Redondo, 1,393 bbls.; Colorado, 15,519 bbls.; Engleman, 5,293 bbls.; Henne-Winch-Farris, 1,230 bbls.; Hords Creek, 4,583 bbls.; Laurel, 2,262 bbls.; Loma Alta, 15,924 bbls.; Loma Vista, 1,445 bbls.; Plachos, 576 bbls.; Mercedes, 12,937 bbls.; Peters, 23,425 bbls.; Rio Grande City, 16,279 bbls.; Ricon, 4,646 bbls.; Roma, 1,052 bbls.; Sarco, 819 bbls.; Thomas-Lockhart, 4,567 bbls.; East Weslaco, 1,988 bbls.; Piedras Pintas, 305 bbls.; total, 127,992 bbls.

(Continued on Page 195)

CAUTION

CHOOSE THE RIGHT METAL WHEN YOU CHOOSE YOUR FENCE

PAGE FENCE

Be warned: No one fence metal is resistant to all the destructive air conditions encountered in various localities. Such conditions include salt spray, alkali, acid or chemical fumes—often carried long distances in the air from neighboring oceans, mineral soils, chemical plants or factories.

5 Superior Fence Metals Meet All Atmospheric Conditions

To meet these various destructive air conditions PAGE FENCE is supplied in 5 master metals—Page P-12 Copper-bearing Steel, Page-Armco Ingot Iron, Page-Alcoa Aluminum, Page-Allegheny Stainless Steel and Page genuine Wrought Iron picket fence. The metal best suited to your locality and purpose is impartially recommended, by PAGE fence experts.

FENCE FACTS FREE

Mail the coupon. It will bring you illustrated booklet "Fence Facts" and refer you to nearest of 92 completely responsible Page Fence Distributors located throughout the United States for free consultation, expert fencing service and erection by trained crew.

Page Fence is a product of the Page Steel & Wire Division of American Chain & Cable Company, Inc.

Fence Facts

PAGE FENCE ASSOCIATION

Dept. OG7, Bridgeport, Connecticut

Please mail me, without obligation, new Free Booklet, "Fence Facts," and name of nearest associated Page Fence Distributor.

Name.....

Address.....

City.....State.....

Semi-Annual Review

ARKANSAS, NORTH LOUISIANA MAKE ADDITIONS TO OIL RESERVES

By GEORGE WEBER

Continuation of the deep drilling trend begun two years ago netted the tri-state area of North Louisiana, East Texas border and Arkansas a number of important discoveries during the first half of 1938. Additions were made to both crude and gas-distillate reserves. Outstanding were the discoveries of two Smackover lime fields in South Arkansas, which may eventually join; the opening of the first crude reserves in the deep Cotton Valley formation, a deeper oil strike at Blue Lake, and the finding of gas-distillate production in the Shongaloo and Logansport areas. In addition to the last four North Louisiana developments, the Jefferson and Waskom fields in the East Border section of Texas were given major extensions.

Arkansas Progress

Drilling in South Arkansas during the initial half of the year was directed entirely to the development of reserves in the Cotton Valley and Smackover lime formations. The latter horizon was found productive in two new fields located in Columbia County.

Several months of operations east of the town of Magnolia by the Kerr-Lynn Oil Co. resulted, late in March, in the opening of a new Smackover lime field. The discovery well, No. 1 Barnett, section 14-17-20, found the productive horizon late in January, logging slightly porous lime at 7,659-64 feet, and 7-inch casing was set at 7,052 feet.

Numerous mechanical difficulties delayed a test of the formation, and upon coring deeper with a 3-inch drill stem, the well, bottomed at 7,740 feet, tested salt and sulfur water. Definite results were not known until early in March, when the well flowed oil and wash water through perforations at 7,623-51 feet. After killing to repair a casing connection, the well was reopened, and after flowing oil for a short time went dead.

Subsequent operations consisted of perforating up the hole between 7,070 and 6,420 feet, then cementing to 6,962 feet. The cement was finally drilled out to 7,700 feet and casing perforated at 7,646-49 feet, bringing the well in for an initial production of 284 bbls. during the first 20 hours on a one-fourth inch choke.

The numerous difficulties encountered in drilling and completing the Magnolia discovery well detract from the information available on the extent and character of the producing formation. To date the discovery well is the only producer, although drilling operations were beginning in offset locations as the first half of the year closed. The discovery well and other properties of the Kerr-Lynn Oil Co. in the Magnolia sector have been purchased by the Atlantic Refining Co., which plans development in the near future.

A second discovery in Columbia County, about 5 miles east of the Magnolia field, closely followed the opening of the latter field. The Standard Oil Co. of Louisiana No. 1 W. P. Phillips, section 15-17-19, cored the same lime formation to total depth of 7,603 feet and was completed in the third week of May. The wildcat, located near Village, from which the field gets its name, gauged an initial production of 74 bbls., the first hour and 92 bbls. the second hour.

This well also is the sole producer in the newly opened field, although new operations are currently under way in offset and outpost locations. Production from both wells is being run from the field by tank truck, as completed production does not yet warrant the laying of a pipe line.

In addition to the two new field discoveries in the Big lime trend, which extends from Lafayette County through Columbia and Union counties, two previously opened fields in the area received development.

Outstanding from volume of drilling activity, and from the extent of development, is the Schuler field of Union County. While the greater part of the drilling was directed to the Jones sand of the Cotton Valley formation, some development also occurred in the Reynolds lime, a member of the Big or Smackover lime.

The Jones sand horizon of Schuler was extended a considerable distance to the north and west. Wells completed on those limits of the field's production continued to show better sand and ran higher than previous edge tests, revealing that the main structure of the field lay in that direction. Forty-five wells were completed in the Jones sand during the first half of the year.

Proration played a major part in the interest created by this field during 1938. Production ran high for the first four months of the half year, accompanied by a steep reservoir pressure decline. May brought a drastic reduction in crude produced from the Jones sand, and the continuation of the lowered output during June resulted in the first pressure rise in the history of the field's production. At the end of the six-month period, however, improved market conditions for the crude, coupled with curtailment of the pressure drop, brought an increase in allowable.

Buckner, the fourth active Big lime field of South Arkansas, received some development, with varied success. Brought in late in 1937, the field consisted only of the discovery well, Standard Oil Co. No. 1 McKean, at the opening of the year. The next two tests drilled failed to make producers. Standard Oil Co. No. 1 Bodcaw-Barbara, located one-half mile south-southwest of the discovery, showed salt water in the lime and was abandoned at total depth of 7,444 feet.

A second test, Taubel and others No. 1 Tatum, located across the line in Lafayette County, three-fourths mile southwest of the discovery, also encountered salt water. Subsequent drilling by Standard, on the east, north, and west of the initial producer, resulted in completion of four wells.

Although development in the three newest Big lime fields, Magnolia, Village, and Buckner, has not progressed far enough to make accurate predictions on their extent, the current opinion is that they may not reach the major size of Schuler. Buckner, particularly,

NORTH LOUISIANA

Daily Average and Monthly Production in First Six Months of 1938

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Ttl. 6 mos. (bbls.)
BELLEVUE:							
Daily average	696	682	715	694	652	641	
Month	21,576	19,096	22,165	20,820	20,212	19,230	123,099
CADDO, Light:							
Daily average	3,915	3,842	3,850	3,839	3,924	4,072	
Month	121,365	107,576	119,350	115,170	121,644	122,160	707,265
CADDO, Heavy:							
Daily average	2,521	2,458	2,477	2,385	2,374	2,422	
Month	78,151	68,824	76,787	71,550	73,594	72,660	441,566
CONVERSE:							
Daily average	625	637	573	384	566	659	
Month	19,375	17,836	17,763	11,520	17,546	19,770	103,810
COTTON VALLEY, Heavy:							
Daily average	209	206	111	95	102	81	
Month	6,479	5,768	3,441	2,850	3,162	2,430	24,130
COTTON VALLEY, Light:							
Daily average	1,831	1,450	2,556	4,123	4,515	5,987	
Month	56,761	40,600	79,236	123,690	139,965	179,610	619,862
COTTON VALLEY, Distillate:							
Daily average	3,015	3,760	4,068	3,962	4,239	4,661	
Month	93,465	105,280	126,108	118,860	131,409	139,830	714,952
DE SOTO AND RED RIVER:							
Daily average	1,446	1,358	1,377	1,452	1,443	1,398	
Month	44,826	38,024	42,687	43,560	44,733	41,940	255,770
ELM GROVE:							
Daily average	359	330	332	339	353	344	
Month	11,129	9,240	10,292	10,170	10,943	10,320	62,094
HAYNESVILLE:							
Daily average	3,140	3,027	2,953	2,938	2,918	2,897	
Month	97,340	84,756	91,543	88,140	90,458	86,910	539,147
HOLLY:							
Daily average	96	92	80	91	82	71	
Month	2,976	2,576	2,480	2,730	2,542	2,130	15,434
HOMER:							
Daily average	2,499	2,511	2,556	2,618	2,642	2,645	
Month	77,469	70,308	79,236	78,540	81,902	79,350	466,805
LISBON:							
Daily average	10,912	10,233	10,396	9,812	11,592	9,698	
Month	338,272	286,524	322,276	294,360	359,352	290,940	1,891,724
PLEASANT HILL:							
Daily average	116	114	112	102	117	106	
Month	3,596	3,192	3,472	3,060	3,627	3,180	20,127
RODESSA:							
Daily average	43,780	43,256	41,674	41,768	38,892	38,012	
Month	1,357,180	1,211,168	1,291,894	1,253,040	1,205,652	1,140,360	7,459,294
SAREPTA-CARTERVILLE:							
Daily average	316	299	227	203	285	461	
Month	9,796	8,372	7,037	6,090	8,835	13,830	53,960
SLIGO:							
Daily average	352	306	222	207	444	569	
Month	10,912	8,568	6,882	6,210	13,764	17,070	63,406
SUGAR CREEK:							
Daily average	338	322	325	319	321	302	
Month	10,478	9,016	10,075	9,570	9,951	9,060	58,150
URANIA:							
Daily average	2,875	2,869	2,787	2,828	2,825	2,864	
Month	89,125	80,332	86,397	84,840	87,575	85,920	514,189
ZWOLLE:							
Daily average	766	784	874	1,002	1,509	1,479	
Month	23,746	21,952	27,094	30,060	46,779	44,370	194,001
Daily average	79,807	78,536	78,265	79,161	79,795	79,369	79,164
First six months 1938	2,474,017	2,199,008	2,426,215	2,374,830	2,473,645	2,381,070	14,328,785
First six months 1937	2,450,860	1,963,220	2,157,259	2,169,090	2,397,664	2,489,310	13,627,403
First six months 1936	1,566,554	1,757,603	1,961,959	1,902,420	2,565,219	2,316,510	12,070,265
First six months 1935	721,897	644,224	711,791	691,590	716,162	693,420	4,179,084
First six months 1934	854,577	786,128	842,549	783,240	770,460	769,890	4,806,844

indicates this limitation, but the extent of the other two can definitely be anticipated only after considerable outpost development.

NORTH LOUISIANA

Summary of Wells Completed First Half of 1938

Parish—	Comp.	Prod.	Dry	Gas
Bienville	1	0	1	0
Bossier	12	4,240	1	1
Caddo-Rodessa	26	9,180	0	1
Caddo—other	56	2,110	13	3
Caldwell	1	0	1	0
Claiborne	71	61,150	4	1
Concordia	1	0	1	0
De Soto	22	430	10	5
Franklin	2	0	2	0
Grant	2	40	1	0
La Salle	12	490	1	0
Lincoln	18	12,685	3	0
Morehouse	3	0	1	2
Natchitoches	2	0	2	0
Ouachita	2	0	2	0
Red River	3	0	3	0
Sabine	21	3,300	6	0
Tensas	2	0	2	0
Union	5	0	0	5
Webster	46	26,735	1	26
Winn	1	0	1	0
Total	309	120,360	56	44

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	59	28,830	7	9
February	41	15,910	9	4
March	53	18,395	12	7
April	37	12,795	5	3
May	38	19,865	3	6
June	81	24,565	20	15
Total	309	120,360	56	44
Same period 1937	277	55,043	64	41
Difference	32	65,317	8	3

Gas production—	Cu. ft.
Bossier	40,000,000
Caddo	27,000,000
Claiborne	40,000,000
De Soto	24,530,000
Morehouse	3,000,000
Red River	5,000,000
Union	11,500,000
Webster	124,000,000
Total	275,030,000

ARKANSAS

Summary of Wells Completed First Half of 1938

County—	Comp.	Prod.	Dry	Gas
Bradley	1	0	1	0
Calhoun	4	4,655	1	0
Cleveland	2	0	2	0
Columbia	3	1,695	1	0
Crittendon	1	0	1	0
Dallas	1	0	1	0
Desha	3	0	3	0
Hempstead	2	0	2	0
Lafayette	2	975	1	0
Little River	1	0	1	0
Lonoke	1	0	1	0
Miller	43	19,790	0	1
Nevada	3	60	1	0
Ouachita	4	10	3	0
Sabine	1	9	1	0
Union	54	50,435	2	0
Total	126	77,620	22	1

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	22	16,040	2	1
February	11	6,650	2	0
March	19	11,980	2	0
April	26	14,025	8	0
May	29	18,720	6	0
June	19	10,205	2	0
Total	126	77,620	22	1
Same period 1937	65	7,062	41	1
Difference	61	70,558	19	0

North Louisiana Discoveries

In several different aspects the Cotton Valley field of Webster Parish showed the most important development during the first half of 1938. The principal producing formation in the field, the deep Bodcaw sand, produces in 26 new wells, greatly augmenting the important reserves of gas and distillate and indicating greater areal extent of the field. The limits of production in this sand body are not yet indicated, and the field is considered North Louisiana's most important reserve of its kind.

An indication of still greater importance than previously considered was the discovery of crude oil production in the Bodcaw sand. The Stanolind Oil & Gas Co., a 1¾-mile southeast outpost test, cored the Bodcaw sand early in June and shortly after flowed a 39-gravity waxy crude. Mechanical difficulties, namely a plug in the tubing, prevented definite completion of the well by the end of June, but its discovery is credited to that month.

The presence of this crude in the Bodcaw sand, down structure from the main body as thus far developed, points to the possible existence of an important crude reserve on the flank of the major structure. The extent of this reserve can only be indicated by widespread outpost drilling, and it will be several months before the true picture of the oil field will be evident.

GOTT WATER CAN
Made in 1½, 3, 5, and 10 gallon sizes.

Gotkool
WATER CANS & COOLERS

GOTT Water Cans are the practical way to keep drinking water cool for long periods, protected from impurities and always handy to the job. Snug fitting large removable top, strongly built to withstand rough usage. GOTT Water Coolers have extra large covers and a handy non-leaking push button faucet. Your Supply Store has them, get one today!

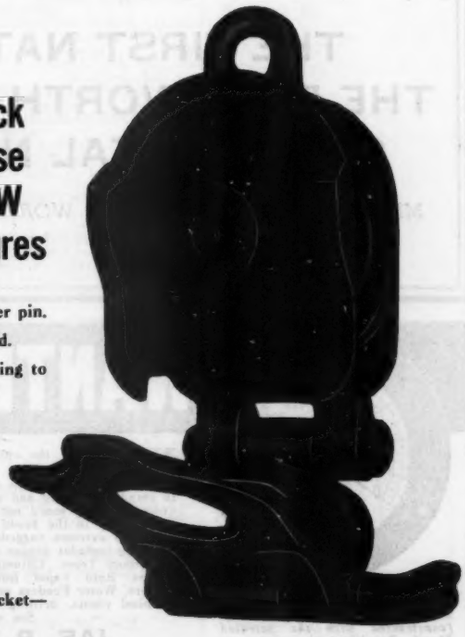
GOTT WATER COOLER
Made in 3, 5, 8, 10 and 20 gallon sizes.

H. P. GOTT MFG. CO.
WINFIELD, KANSAS
KEEP PURE DRINKING WATER ALWAYS HANDY

Here's NEWS!
Positive Locking and Quick Opening Snatch Blocks with Extreme Flexibility of Operation

This improved locking feature coupled with quicker opening is meeting with unusual favor among operators. McKissick's new snatch blocks are so designed that in order to open them you simply lift the hinged plate from locking position. After the line is placed on the sheave the locking plate is forced into position by tension spring. A time saver and a safe block to use.

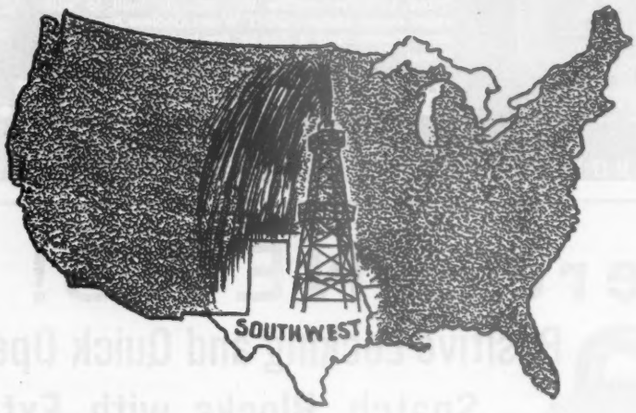
Check These NEW Features



1. Load on locking plate is carried by large center pin.
2. Frame plates cannot spread under heavy load.
3. Swivel hook and cross bolt allow hook to swing to conform to angle of pull—no rigidity.
4. Steel sheaves, grooved for 1½" Manila Rope or any size wire line specified. Sheaves of same diameter are interchangeable regardless of line groove.
5. 2" Diameter sheave pin—extra heavy.
6. High Speed Bronze Bushings or Hi-Load type Roller Bearings.
7. Alemite lubrication.
8. Equipped with swivel hook or with swivel becket—interchangeable.

McKissick Products Corp.
Tulsa, Okla.

OIL HELPS KEEP IT BRIGHT



OIL Development has become a major factor in keeping the Southwest in the Nation's "bright spot" of better business conditions. Because the progress and welfare of the Oil Industry so closely parallel that of Southwestern Business generally, Fort Worth Banks have a double interest in encouraging and serving every oil activity.

THE FIRST NATIONAL BANK
THE FORT WORTH NATIONAL BANK
CONTINENTAL NATIONAL BANK

MEMBER BANKS OF THE FORT WORTH CLEARING HOUSE ASSOCIATION

The Marsh Oil Industry Gauge (constructed with the patented Marsh Recalibrator) assures an accurate gauge always.

WANTED — *a job where other gauges have failed*

YES, we want the opportunity to prove Marsh stamina, and we welcome a test on the most grilling application you have!
We say this because in our factory testing—for pulsation, for vibration, for ability to stand flat footed and take it—we insist that Marsh gauges survive abuse that the ordinary gauge could not withstand.
Particularly in the broad line of Marsh Gauges for the petroleum industry we have combined extreme ruggedness with remarkable accuracy.
The line includes gauges especially designed for: Blenders, Boilers, Burners, Capping, Christmas Trees, Columns, Heaters, Hydrogen Units, Instrument Panels, Piping, Pumps, Reid Vapor Bombs, Scrubbers, Separators, Slush Pumps, Stills, Tanks, Towers, Water Feeders and all other applications in refineries, natural gasoline plants, chemical plants, drilling and production units.
See your supply house for complete details.

JAS. P. MARSH CORPORATION
2065 N. SOUTHPORT AVENUE, CHICAGO

MARSH GAUGES

The major size of the field thus far greatly enhances the importance of the strike, and indications are that it may well prove the outstanding development of 1938 in the tri-state area.

In addition to extension and new discovery in the deep Bodcaw sand, the intermediate Holloway sand of the field was developed to a considerable degree. Opened in August 1936 in the same well which discovered the Bodcaw, Ohio Oil Co. No. 6 Holloway, the Holloway sand produced in that well alone during the next 16 months, while the Bodcaw sand was undergoing development.

At the first of the year, however, the second Holloway sand well was completed, leading a development which totaled 18 Holloway producers at the end of the first half. After the success of the W. G. Ray Drilling Co. No. 1 Stewart, second well to be completed in the sand, operators began coring for the Travis Peak section, and where the sand was found present, it was tested.

Holloway wells were completed where possible, and failures were deepened to make Bodcaw producers. The sand body is irregular throughout the field, and numerous tests showed complete absence or insufficient saturation to make wells.

Shongaloo Deep Test

North of the Cotton Valley field, located in the old shallow Shongaloo gas field, the Magnolia Petroleum Co. No. 1 Sexton Unit, section 32-23-9, was drilled and cored to a total depth of 10,462 feet in search of the Big lime. Failing in that object, the company plugged back to a sand previously cored and perforated casing at 8,990-9,010 feet for a deep gas and distillate discovery.

Another deep test attracted considerable attention but was abandoned without any oil showings reported. It was Union Producing Co. No. 2 Brownfield, carried to a total depth of 10,759 feet in the Sugar Creek field of Claiborne Parish.

Lisbon Drilling

Drilling increased in the Lisbon field of Claiborne and Lincoln parishes, but activity did not reach the proportions of a year ago. Several important extensions to the producing limits, notably a three-fourths mile southwest outpost completion, C. R. Schuster's No. 1 Sallie Lloyd, added to proven acreage. At the end of June drilling was falling off slightly.

Blue Lake

The shallow Blue Lake field, located southwest of Zwolle and abandoned for some time, was brought back to importance by a deeper oil discovery. Sutton-Zwolle Oil Co. No. 1 Sabine Lumber Co., section 23-7-14, Sabine Parish, found the first oil showing at 3,843 feet late in February on a drill-stem test at 3,843-53 feet. Casing was set, but subsequent operations failed to bring the well in.

The wildcat was deepened and in May blew out while coring at 4,208 feet. Successfully shut in, it has been flowing with the drill string still in the hole. The strike started several other tests to the area, but the nearest, a northeast offset, was abandoned late in June after apparently failing to find saturation in the discovery sand.

The Logansport gas field of De Soto Parish and Shelby County, Texas, gained an apparent 3½-mile extension late in May when Hunter Co. No. 1 Parker, section 26-12-16, came in flowing 4,250,000 feet of gas through perforations at 4,953-5,085 feet. Northwest of the Hunter test, a second wildcat, Alexander No. 1 Stoll, section 5-12-16, has found showings of oil at 5,080-5,132 feet but was still attempting completion at the end of June.

Texas Border Counties

The Jefferson-Lodi district of Marion County, southwest producing section of Rodessa, was the tri-state district's most rapidly developed proven field in the first half of the year. A total of 61 oil producers were completed, and the two areas were joined, although separated from Rodessa proper by dry holes.

Most important single test in the Marion County sector was the completing of the Arkansas Louisiana Gas Co. No. 1 Pitts, in the Charles Lockhart Survey, a 2½-mile southwest outpost to Jefferson. The test was completed as a gasser, spraying distillate and producing from the Hill sand. The Hill is not productive in Jefferson-Lodi, and the nearest like producer is located near the Louisiana line of Cass County, several miles to the northeast of the No. 1 Pitts.

The area surrounding the outpost is believed to be

All Perfectly BALANCED

Your experience has proved that flexibility is a vital characteristic of wire rope. But your experience has also proved that a rope which sacrifices other essential characteristics to gain flexibility will not stand up on the job.

Consequently, flexibility is one of the characteristics always to be found in "HERCULES" (Red-Strand) Wire Rope—plus these other equally essential features—strength . . . elasticity . . . toughness . . . and durability. All perfectly balanced to assure better . . . longer . . . and more economical performance.

Your first trial will convince you that "HERCULES" (Red-Strand) solves your wire rope problem the economical way. Try it on your next job.

"HERCULES" Rotary Lines are available in both Round Strand and Flattened Strand construction—either Standard or Preformed. . . . We especially recommend the Preformed type of Wire Rope for Tubing Lines, Sucker Rod Lines and Winch Lines.

DOMESTIC DISTRIBUTORS

AMERICAN SUPPLY COMPANY
Kilgore, Texas

CASEY & NEWTON
901 Century Building Pittsburgh, Pa.

GUSTIN-BACON MANUFACTURING CO.
Kansas City
Fort Worth Houston Odessa Tulsa

F. HAMILTON CO., INC.
Bradford, Pa.

HERCULES SUPPLY COMPANY
Fort Worth Houston Corpus Christi Kilgore

HILLMAN-KELLEY, INC.
2441 Hunter Street Los Angeles, Calif.

KIMBELL-BOSTIC COMPANY, INC.
Burkburnett, Texas

THE B. LEVY ESTATE
Titusville, Pa.

MURRAY-BROOKS HARDWARE CO., LTD.
Lake Charles, La.
Houma Jennings New Iberia

NORVELL-WILDER SUPPLY COMPANY
Beaumont Corpus Christi Fort Worth Houston
Monahans, Texas Lake Charles, La.

PARKERSBURG SUPPLY COMPANY
Parkersburg, W. Va.

THE ALMA PIPE & SUPPLY COMPANY
Alma, Mich.

UNION PIPE AND SUPPLY CO., INC.
Owensboro, Ky.

UNITED PIPE AND SUPPLY CORP.
Charleston, W. Va. Paintsville, Ky.

UNITED SUPPLY & MANUFACTURING CO.
Tulsa Oklahoma City Stonewall
Chase, Kan. Hutchinson, Kan. Houston, Tex.
Odessa, Tex. Pampa, Tex. Eunice, N. M.

WESTERN MACHINERY COMPANY
Clay City, Illinois

EXPORT DISTRIBUTOR

CONTINENTAL EMSCO COMPANY, INC.
30 Rockefeller Plaza, New York, N. Y.
Branches: Buenos Aires, London, Ploesti

Made Only By **A. LESCHEN & SONS ROPE CO.** Established 1857

5909 Kennerly Avenue, St. Louis, Mo.

NEW YORK CHICAGO DENVER PORTLAND SAN FRANCISCO SEATTLE

heavily faulted, and the possibility of finding oil production down structure from the Pitts in the Hill sand has promoted heavy leasing in the area. At the end of June the same company was drilling a second outpost, located south of the No. 1 Pitts.

Located 2½ miles southwest of the Waskom gas field, in Harrison County, Arkansas-Louisiana Gas Co. No. 1 Abney, Little Survey, was completed for a gasser, making 18,000,000 feet of gas daily at 4,834 feet, after previously blowing out.

EAST TEXAS BORDER

Summary of Wells Completed First Half of 1938

County—	Comp.	Prod.	Dry	Gas
Bowie	1	0	1	0
Cass-Rodessa	8	1,465	1	0

ARKANSAS

Daily Average and Monthly Production in First Six Months of 1938

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Ttl. 6 mos. (bbls.)
BUCKNER:							
Daily average	407	368	202	463	637	931	
Month	12,617	10,304	6,262	13,890	19,747	27,930	90,750
CHAMPAGNOLLE:							
Daily average	1,229	1,182	1,189	1,206	1,204	1,164	
Month	38,099	33,096	36,859	36,180	37,324	34,920	216,478
EL DORADO:							
Daily average	1,849	1,847	1,855	1,866	1,872	1,829	
Month	57,319	51,716	57,505	55,980	58,032	54,870	335,422
LISBON:							
Daily average	278	272	269	266	270	271	
Month	8,618	7,616	8,339	7,980	8,370	8,130	49,053
MILLER COUNTY:							
Daily average	367	298	400	384	386	396	
Month	11,377	8,344	12,400	11,520	11,966	11,880	67,487
NEVADA:							
Daily average	685	672	673	649	635	634	
Month	21,235	18,816	20,863	19,470	19,685	19,020	119,089
RODESSA:							
Daily average	8,526	7,932	8,003	7,680	6,929	7,128	
Month	264,306	222,096	248,093	230,400	214,799	213,840	1,393,534
SCHULER:							
Daily average	7,930	13,521	17,490	20,264	8,855	11,842	
Month	245,830	378,588	542,190	607,920	274,505	355,260	2,404,293
SMACKOVER, LIGHT:							
Daily average	1,971	1,986	2,006	2,042	2,068	2,079	
Month	61,101	55,608	62,186	61,260	64,108	62,370	366,633
SMACKOVER, HEAVY:							
Daily average	15,454	15,826	15,847	15,879	16,326	16,356	
Month	479,074	443,128	491,257	476,370	506,106	490,680	2,886,615
STEPHENS:							
Daily average	545	558	562	541	567	567	
Month	16,895	15,624	17,422	16,230	17,577	17,010	100,758
TROY:							
Daily average	1,272	1,311	1,285	1,260	1,238	1,217	
Month	39,432	36,708	39,835	37,800	38,378	36,510	228,663
URBANA:							
Daily average	1,212	1,202	1,194	1,238	1,223	1,364	
Month	37,572	33,656	37,014	37,140	37,913	40,920	224,215
VILLAGE:							
Daily average	.....	.....	.....	295	290	242	
Month	.....	.....	.....	8,850	8,990	7,260	25,100
Daily average	41,725	46,975	50,975	54,033	42,500	46,020	47,006
First six months 1938	1,293,475	1,315,300	1,580,225	1,620,990	1,317,500	1,380,600	8,508,090
First six months 1937	803,117	758,660	843,851	824,220	850,175	850,230	4,930,253
First six months 1936	935,115	858,313	925,815	895,830	928,419	894,930	5,439,422
First six months 1935	974,175	861,588	950,336	917,520	967,262	933,810	5,604,691
First six months 1934	987,412	875,224	958,489	918,810	920,850	923,820	5,584,605

Month—	Comp.	Prod.	Dry	Gas
Cass—other	3	0	3	0
Harrison	1	0	0	1
Marion-Rodessa	62	23,065	0	1
Panola	3	0	2	1
Shelby	2	0	2	0
Total	80	24,530	9	3
Completions by Months				
January	9	2,195	2	1
February	9	3,900	1	0
March	20	5,890	4	0
April	15	5,215	2	0
May	13	2,530	0	2
June	14	4,800	0	0
Total	80	24,530	9	3
Same period 1937	180	66,292	17	13
Difference	100	41,762	8	10

MISSISSIPPI

Summary of Wells Completed First Half of 1938

Calhoun	1	0	1	0
Claiborne	2	0	2	0
Hancock	1	0	1	0
Hinds	5	0	3	2
Lamar	1	0	1	0
Perry	1	0	1	0
Wilkenson	1	0	1	0
Yalobusha	1	0	1	0
Total	13	0	11	2
Completions by Months				
January	3	0	3	0
February	1	0	1	0
March	2	0	2	0
April	5	0	5	0
May	1	0	0	1
June	1	0	0	1
Total	13	0	11	2
Same period 1937	12	0	10	2
Difference	1	0	1	0

ALABAMA

Summary of Wells Completed First Half of 1938

Clarke	1	0	1	0
Houston	1	0	1	0
Mobile	1	0	1	0
Total	3	0	3	0
Completions by Months				
April	2	0	2	0
May	1	0	1	0
Total	3	0	3	0
Same period 1937	1	0	1	0
Difference	2	0	2	0

Note: No completions in Florida during first half of 1938 or during first half of 1937.

Buckeye

. . . DIGS the DITCH

Buckeye Ditchers are used on pipe line work the world over because the men who build pipe lines know that they can depend upon Buckeye Ditchers to get the job done - on time - and at the lowest year around cost. Experience proves it.

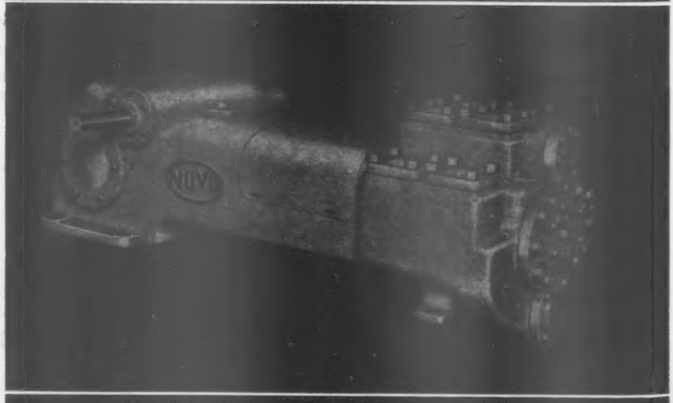
THE Buckeye Traction Ditcher Co.
FINDLAY, OHIO

BID THE Buckeye WAY
• ask for our operation data before you bid •

NOVO

SALES AND SERVICE BY

National SUPPLY COMPANY



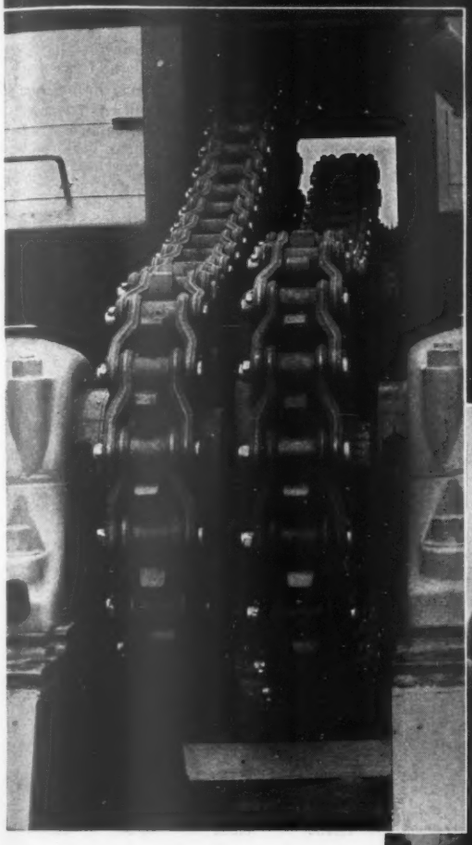
NOVO POWER PUMPS, Model O. P., Horizontal, Duplex, Double Acting, for general oil field service including oil, water and slush. They are fully enclosed and roller bearing equipped — interchangeable for capacity and different types of service.

See any National Supply Store for sales service and information.

PUMPS • ENGINES • GENERATORS • STARTING UNITS

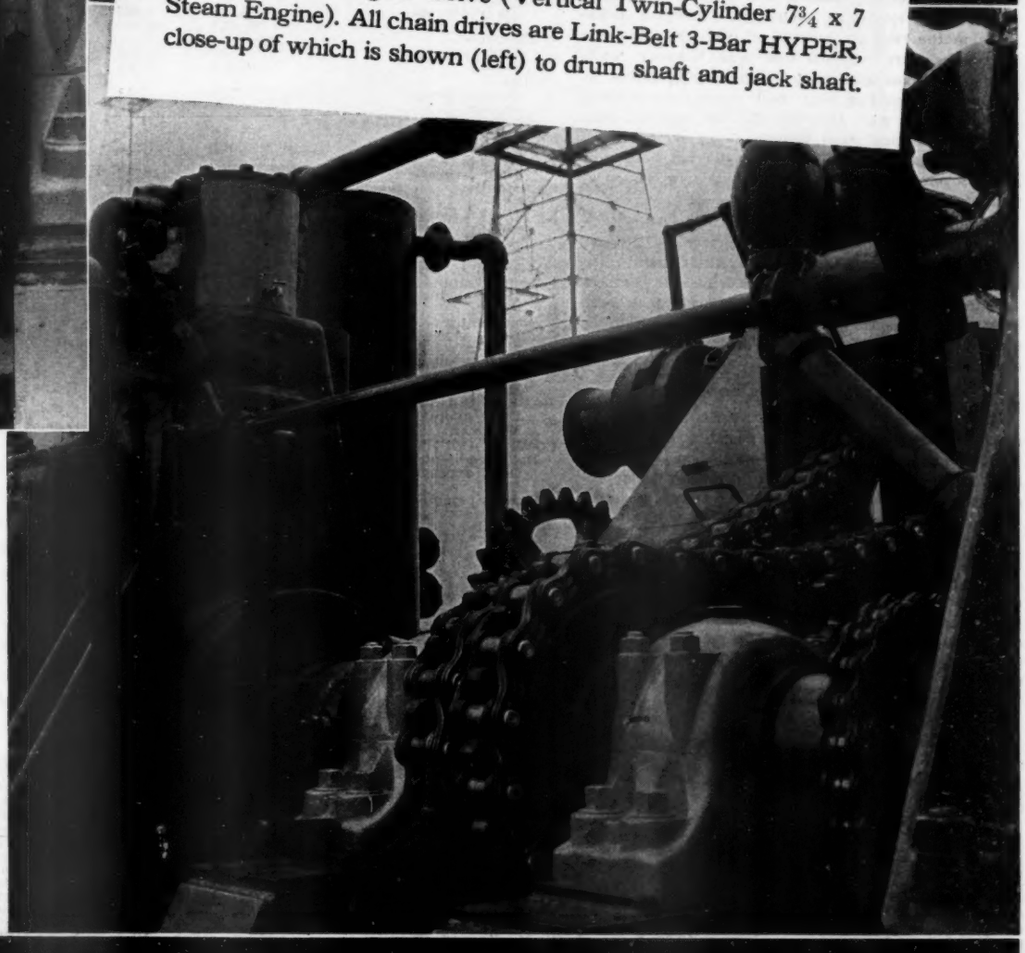
NOVO ENGINE CO.
240 Porter Street
LANSING • MICHIGAN

"HYPER" THE LAST WORD IN ROTARY CHAIN *for Today's deep drilling*



● For the operator who wants to go deep... and go there in a hurry... with consistently smooth, trouble-free performance, drillers the world over advise: "Chain 'er up with HYPER!" They know from experience with all makes and types of oil country chains that Link-Belt HYPER is definitely dependable, whatever the depth, load or the hard usage may be.

Pictured here is Oil Well Supply Company's modern steam Saving Equipment, including the "OILWELL" No. 7-P Hoist (4 Drum Speeds and 2 Rotary Speeds) and the "OILWELL" No. 7 Double Engine Drive (Vertical Twin-Cylinder 7¾ x 7 Steam Engine). All chain drives are Link-Belt 3-Bar HYPER, close-up of which is shown (left) to drum shaft and jack shaft.



LINK-BELT COMPANY

INDIANAPOLIS
HOUSTON
TULSA
DALLAS
LOS ANGELES
PHILADELPHIA
CHICAGO
NEW YORK

7435

LINK-BELT CHAINS

THE CHOICE OF EXPERIENCED DRILLERS

Semi-Annual Review

SEVERAL IMPORTANT KANSAS STRIKES DESPITE DECREASE IN WORK

By DAL DALRYMPLE

The first half of 1938 was a period of discovery in Kansas, despite the sharp curtailment in field operations, reduction in the number of active wildcat tests and general decline in exploration. Several new pools of considerable significance were discovered, two counties were added to the list of oil areas and productive limits were extended to the west and northwest. Numerous extensions of previously opened pools and discoveries of new pay zones in older areas also featured field activity in the first six months of the year.

The number of wildcat strikes was considerably less than the total for the last half of 1937, but the total oil discoveries exceeded by one the number recorded in the first half of the past year.

Wildcats completed as oil producers in the first half of 1938, either opening new pools or extending proven areas, totaled 29, against the 28 similar strikes made in the first six months of 1937. Only two gas discoveries were reported this year, however, while five such strikes were made in the corresponding period of the preceding year. Both records are dwarfed in comparison with that for the last half of 1937, when 40 wildcats were completed as oil producers and 11 as gas wells. All of these did not open new pools, several being extensioners that were classed as wildcats when drilled.

The number of wildcat failures drilled this year was less than in either of the two preceding half-year periods, but this is accounted for by the reduced number of exploratory tests that were drilled. There were 110 dry wildcats completed from January 1 to June 30, this year, as compared with 138 wildcat failures the first half of 1937 and 149 failures the last half of that year.

Operators Drill Deeper

Kansas wildcat operators bored farther into the earth in their quest for oil and gas this year than in 1937. The average depth of 1938 oil and gas wells was 3,534 feet, while the average depth of all wildcat producers completed in 1937 was 3,068 feet. Wildcat failures of the current year averaged 3,597 feet, compared with the average of 3,426 feet for the dry holes of 1937.

The decline in general field operations set in soon after January 1 and activity continued at low ebb throughout the six months. In view of poor market conditions and similar depressing factors, operators were slow to drill other than offset and contractural tests.

Only 858 wells were completed, compared with 1,118 in the first period of 1937 and 1,472 in the last half of that year. Even so, the current record surpasses that of the first half of 1936, when 757 wells were completed.

The 1938 completions included 584 oil wells with initial yield of 422,954 bbls., 42 gas wells and 232 dry holes. It is in this respect that the sharp drop from the high figures of 1937 is best exemplified. The record for this year looks slim, indeed, when compared with corresponding period of the previous year, and

KANSAS

Daily Average and Monthly Production in First Six Months of 1938

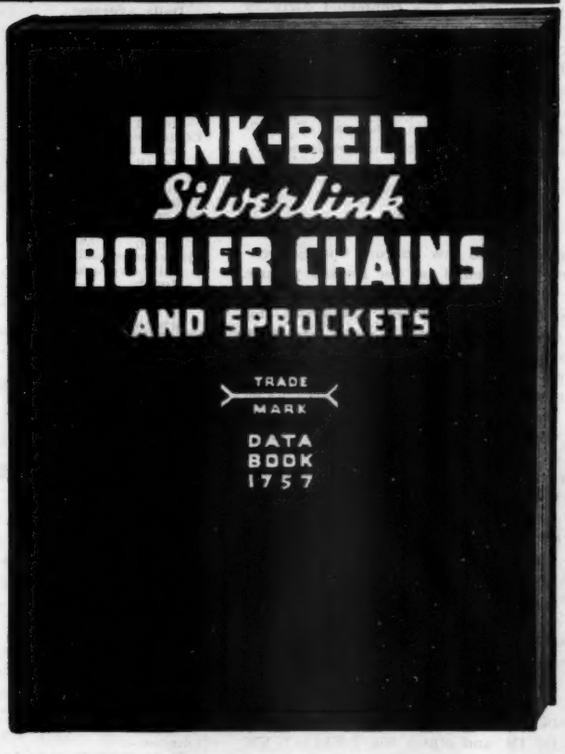
	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Ttl. 6 mos. (bbls.)
BARTON COUNTY:							
Ainsworth district—							
Daily average	1,928	1,215	1,201	1,265	957	1,162	
Month	59,768	34,020	37,231	37,950	29,667	34,860	233,496
Albert—							
Daily average	138	91	130	269	293	269	
Month	4,278	2,548	4,030	8,070	9,083	8,070	36,079
Beaver-North Beaver—							
Daily average	495	629	447	468	467	457	
Month	15,345	17,612	13,857	14,040	14,477	13,710	89,041
Bloomer—							
Daily average	3,538	2,963	2,682	2,709	2,305	2,217	
Month	109,678	82,964	83,142	81,270	71,455	66,510	495,019
Ellinwood—							
Daily average	536	456	368	319	341	370	
Month	16,616	12,768	11,408	9,570	10,571	11,100	72,033
Hiss—							
Daily average	174	148	111	115	107	98	
Month	5,394	4,144	3,441	3,450	3,317	2,940	22,686
Kraft—							
Daily average	771	639	768	906	716	803	
Month	23,901	17,892	23,808	27,180	22,196	24,090	139,067
Lanterman—							
Daily average	238	153	163	192	152	102	
Month	7,378	4,284	5,053	5,760	4,712	3,060	30,247
Rick—							
Daily average	155	133	107	108	96	104	
Month	4,805	3,724	3,317	3,240	2,976	3,120	21,182
Southwest Trapp—							
Daily average	.....	.....	85	102	125	80	
Month	.....	.....	2,635	3,060	3,875	2,400	11,970
South Trapp—							
Daily average	507	546	1,093	1,251	932	1,214	
Month	15,717	15,288	33,883	37,530	28,892	36,420	167,730
South Silica—							
Daily average	2,812	2,570	2,501	2,443	1,829	1,845	
Month	87,172	71,960	77,531	73,290	56,699	55,350	422,002
Miscellaneous—							
Daily average	140	137	193	361	159	501	
Month	4,340	3,836	5,983	10,830	4,929	15,030	44,948
BARBER COUNTY:							
Daily average	258	226	289	393	211	204	
Month	7,998	6,328	8,959	11,790	6,541	6,120	47,736
COWLEY COUNTY:							
David and South David—							
Daily average	174	227	237	170	164	169	
Month	5,394	6,356	7,347	5,100	5,084	5,070	34,351
Gueda Springs—							
Daily average	185	155	179	172	122	124	
Month	5,735	4,340	5,549	5,160	3,782	3,720	28,286
Murphy—							
Daily average	150	125	132	148	119	122	
Month	4,650	3,500	4,092	4,440	3,689	3,660	24,031
Trees—							
Daily average	225	208	170	201	170	182	
Month	6,975	5,824	5,270	6,030	5,270	5,460	34,829
Turner—							
Daily average	166	140	128	133	82	88	
Month	5,146	3,920	3,968	3,990	2,542	2,640	22,206
Weathered—							
Daily average	645	651	719	644	995	967	
Month	19,995	18,228	22,289	19,320	30,845	29,010	139,687

(Continued on Page 184)

KANSAS NEW DISCOVERIES FIRST HALF OF 1938

Field and county—	Location	Operator—	Comp. week end.	No. wells June 30	Producing formation	Total depth, ft.	Initial potential bbls.
North Toulon, Ellis	34-13-17w	Watchorn Oil & Gas Co.	Jan. 8	1	Arbuckle	3,529	515
Cunningham, Pratt	2-28-11w	Skelly Oil Co. and others	Jan. 8	35	Viola	4,300	43,485,000 ft. gas
Aldrich ext., Ness	5-18-25w	Continental Oil Co.	Jan. 15	7	Mississippi	4,325	653
Letsch ext., Russell	28-14-13w	R. H. Shields and others	Jan. 22	30	Kansas City	2,922	1,635
Zyba, Sumner	7-30- 1e	W. M. McKnabb	Jan. 22	1	Wilcox	3,869	386
Hoisington, Barton	21-17-13w	Thayer Drilling Co. and Brouk	Jan. 29	3	Kansas City	3,268	1,065
Richards, Ellis	5-11-18w	Gilmer Oil Co. and others	Jan. 29	2	Kansas City	3,373	941
Lindsborg, McPherson	8-17- 3w	Carter Oil Co. and others	Feb. 5	2	Viola	3,569	345
Walters ext., Ellis	13-12-18w	P. G. Reynolds and others	Feb. 5	23	Arbuckle	3,682	917
Sterling, Rice	4-22- 8w	W. E. Witt and others	Feb. 12	1	Chat	3,401	326
Campbell, Rice	28-19- 9w	Skiles and others	Feb. 12	2	Arbuckle	3,208	152
Oatville, Sedgwick	18-28- 1e	I. W. Murfin and others	Feb. 12	1	Wilcox	3,491	24
Schroeder, Ellsworth	29-17- 9w	Cities Service Oil Co. and others	Feb. 19	5	Arbuckle	3,215	2,644
Chautauqua	29-33-10	Sooby and others	Mar. 26	1	Peru	1,548	4
Greenvale, Russell	4-15-12w	Jones and Shelbourne and others	April 9	1	Lime	3,045	945
Buhler, Reno	25-22- 5w	Amerada and Westgate-Greenland	April 9	2	Simpson	3,902	912
Fairport ext., Ellis	2-13-16w	Hayes & Sackrider	April 16	153	Kansas City	3,242	150
Leesburgh, Stafford	12-25-13w	Continental Oil Co. and others	April 23	1	Arbuckle	4,162½	853
Bonham, Stafford	28-25-12w	National Refining Co.	April 23	1	Arbuckle	4,213	330
N. Ellinwood, Barton	7-20-11w	Crown Petroleum Co.	April 23	1	Arbuckle	3,352	473
Morel, Graham	15- 9-21w	Continental-Cities Service	April 23	1	Arbuckle	3,718	2,105
N. Stumps, Ellsworth	28-17-10w	Ralph Wixson and others	May 7	35	Arbuckle	3,306	786
S. Burnett, Ellis	12-11-18w	Duwe & Farris	May 21	1	Arbuckle	3,332	1,266
Fischer, Stafford	31-21-12w	Cardinal Oil Co. and others	May 21	2	Arbuckle	3,650	783
S. Sittner, Stafford	3-22-12w	Stanolind Oil & Gas Co.	May 28	1	Arbuckle	3,601	2,221
Decker, McPherson	12-21- 2w	Darrah-Aurell & Williams	May 28	1	Mississippi	3,561½	5,000,000 ft. gas
Hittle Arb., Cowley	21-31- 4	McKnabb & Blair	June 1	2	Arbuckle	3,284	1,220
Foster, Russell	19-15-15w	S. L. Parks and others	June 11	1	Kansas City	3,342	341
Trapp, Russell	11-15-14w	J. J. Hall	June 25	1	Kansas City	3,100	1,029
Aldrich ext., Ness	10-18-25w	Schoeppel & Elmore	June 25	7	Mississippi	4,353½	598
Nunn, Finney	27-21-34w	Atlantic Refining Co.	June 25	1	Mississippi	4,667	600

Send For This NEW 174-Page DATA BOOK



● Every probable question on the subject is answered in this authoritative manual on finished steel roller chains, attachments and sprockets . . . for power transmission and conveying. 174 pages of meaty, illuminating information — list prices, ratings and bed-rock figuring and design data. Information is given on many new chains, such as Twist-type drive chains, Universal Carrier, flat top and other extended pitch conveyor chains. Also a special section covering stainless steel, bronze and other alloy chains.

Your entire requirements for drives, conveyors and miscellaneous applications may be selected from this book. Send for a copy today. Use your business letterhead and ask for Data Book No. 1757.

even slimmer in comparison with the last half of that year. The first half of 1937 saw 1,118 wells completed, including 820 oil wells, 34 gas wells and 264 dry holes, while the tabulation for the last half of the year shows 1,472 completions, 1,047 oil wells, 83 gas wells and 342 dry holes.

The record of discovery for the first half of 1938 is outstanding, then, in view of the comparatively small number of total completions. Had drilling been on a par with that of 1937, it is entirely possible that new records of discovery and development might have been set.

Two New Oil Counties

Graham and Finney counties were added to the list of those that produce oil.

The Graham County discovery well was the Continental Oil Co. and Cities Service Oil Co. No. 1 Morel, C W half E half NE section 15-9-21w, an April completion. It opened the Morel pool, in the eastern part of the county, about 13 miles northeast of the Wakeeney pool in Trego County, and a similar distance northwest of the Zurich pool in Rooks County. It made initial potential of 2,105 bbls. of 31-gravity oil from Arbuckle lime topped at 3,711 feet, total depth 3,718 feet. The Morel pool is in a region between the Otis arch and Norton granite ridge. This strike was expected to encourage further exploration in northern Kansas, especially in Graham, Rooks, Norton, Trego, and Phillips counties.

Finney County's first oil pool and the farthest west producing area in Kansas was opened late in June, with completion of Atlantic Refining Co. No. 1 Nunn, SE SE NE section 27-21-34w, about 20 miles northwest of Garden City. This new area, named the Nunn pool, is about 9 miles southwest of the Shallow Water pool of Scott County, which had been the state's farthest west oil field. The discovery well was bottomed at 4,667 feet, in Mississippi lime topped at 4,616 feet. After shooting and acidizing, it was completed as a 600-bbl. well. Gravity of the oil was 28.9 degrees.

An important gas strike was completed early in January at Skelly Oil Co. and associates No. 1 Adams, SE NW NE section 2-28-11w, wildcat in Pratt County, southwest of the Cunningham oil and gas pool. The new area later was designated as part of the Cunningham pool, so it rates as an extensioner rather than a pool opener. It had Viola lime pay at 4,177-4,200 feet, total depth 4,300 feet, and produced 43,485,000 feet of gas to rate as one of the larger gas wells ever to be completed in Kansas.

Activity in Stafford

The six months' period saw Stafford County force its way into the foreground of the Kansas picture as one of the state's leading oil counties. It set a fast pace, both in matter of wildcat discoveries and extensions and development of proven areas. Four new Stafford County pools were opened, and numerous extensions were made to older producing areas.

The Leesburgh pool was the first new area to be discovered in Stafford County this year. The discovery well, Continental Oil Co. and others No. 1 Fair, C N half N half SW section 12-25-13w, about 4 miles south of the St. John's pool, was completed during the week ending April 23. It had initial potential of 853 bbls. of 36.8-gravity oil from Arbuckle lime topped at 4,151 feet, total depth 4,162½ feet.

The second Stafford County discovery of the year was completed the same week at National Refining Co. No. 1 Bonham, SW SW SE section 28-25-12w, about 8 miles southwest of the town of Stafford. It found Arbuckle lime at 4,200 feet, total depth 4,213 feet, and made initial potential of 330 bbls. of 34.7-gravity oil.

The Fischer pool, the county's third new producing area of 1938, was opened the week ending May 21 at Cardinal Oil Co. and others No. 1 Fischer, SW NW SW section 31-21-12w, between the Sittner, Drach and Gates pools. It made initial potential of 783 bbls. of oil from Arbuckle lime found at 3,641 feet, total depth 3,650 feet. Gravity of the oil was 38.2 degrees.

One week later the South Sittner pool, the fourth Stafford discovery of the year, was opened at Stanolind Oil & Gas Co. No. 2 Siefkes, NE SE NE section 3-22-12w, northeast of Hudson. After finding Arbuckle lime at 3,594 feet, total depth 3,601 feet, it made initial potential of 2,221 bbls. of 42.5-gravity oil.

Important Sand Pool

Development of the Zenith pool in eastern Stafford County, near the Reno County line, was a high-

KANSAS (Continued)

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Ttl. 6 mos. (bbls.)
Biddle—							
Daily average	137	130	163	158	142	144	
Month	4,247	3,640	5,053	4,740	4,402	4,320	26,402
Burden—							
Daily average	265	273	278	262	261	256	
Month	8,215	7,644	8,618	7,860	8,091	7,680	48,108
Carson—							
Daily average	184	176	181	182	171	169	
Month	5,704	4,928	5,611	5,460	5,301	5,070	32,074
Eastman—							
Daily average	209	219	189	192	201	198	
Month	6,479	6,132	5,859	5,760	6,231	5,940	36,401
Grand Summit—							
Daily average	117	116	107	113	94	96	
Month	3,627	3,248	3,317	3,390	2,914	2,880	19,376
Rainbow Bend and West Rainbow Bend—							
Daily average	1,178	1,197	1,218	1,219	1,207	1,206	
Month	36,518	33,516	37,758	36,570	37,417	36,180	217,959
Rock, East Rock and North Rock—							
Daily average	272	467	408	393	211	214	
Month	8,432	13,076	12,648	11,790	6,541	6,420	58,907
State—							
Daily average	269	298	276	250	267	261	
Month	8,339	8,344	8,556	7,500	8,277	7,830	48,846
Winfield—							
Daily average	351	384	377	346	349	339	
Month	10,881	10,752	11,687	10,380	10,819	10,170	64,689
Miscellaneous—							
Daily average	599	674	636	724	582	618	
Month	18,569	18,872	19,716	21,720	18,042	18,540	115,459
COFFEY COUNTY:							
Daily average	75	76	91	88	90	91	
Month	2,325	2,128	2,821	2,640	2,790	2,730	15,434
ELK COUNTY (Western Half):							
Daily average	894	929	832	917	829	837	
Month	27,714	26,012	25,792	27,510	25,699	25,110	157,837
CLARK COUNTY:							
Daily average	93	79	93	90	153	61	
Month	2,883	2,212	2,883	2,700	4,743	1,830	17,251
ELLIS COUNTY:							
Bemis—							
Daily average	6,606	5,853	5,429	5,710	5,531	5,677	
Month	204,786	163,884	168,299	171,300	171,461	170,310	1,050,040
Burnett—							
Daily average	.....	.....	.....	554	158	20	
Month	.....	.....	.....	16,620	4,898	600	22,118
Cress—							
Daily average	905	745	721	745	729	758	
Month	28,055	20,860	22,351	22,350	22,599	22,740	138,955
Shutts—							
Daily average	671	653	611	535	479	587	
Month	20,801	18,284	18,941	16,050	14,849	17,610	106,535
Ruder —							
Daily average	255	263	322	384	347	403	
Month	7,905	7,364	9,982	11,520	10,757	12,090	59,618
Walters—							
Daily average	767	623	676	653	602	637	
Month	23,777	17,444	20,956	19,590	18,662	19,110	119,539
Marshall—							
Daily average	515	429	381	371	364	323	
Month	15,965	12,012	11,811	11,130	11,284	9,690	71,892
Miscellaneous—							
Daily average	456	355	406	409	415	374	
Month	14,136	9,940	12,586	12,270	12,865	11,220	73,017
ELLSWORTH COUNTY:							
Breford—							
Daily average	407	407	414	450	342	349	
Month	12,617	11,396	12,834	13,500	10,602	10,470	71,419
Lorraine—							
Daily average	2,743	2,609	2,692	2,422	2,385	2,087	
Month	85,033	73,052	83,452	72,660	73,935	62,610	450,742
Stoltenberg—							
Daily average	304	399	386	346	316	267	
Month	9,424	11,172	11,966	10,380	9,796	8,010	60,748
Stratman—							
Daily average	279	270	280	261	255	271	
Month	8,649	7,560	8,680	7,830	7,905	8,130	48,754
Miscellaneous—							
Daily average	116	171	229	252	193	244	
Month	3,596	4,780	7,099	7,560	5,983	7,320	36,338
KINGMAN COUNTY:							
Daily average	609	620	625	508	591	581	
Month	18,879	17,360	19,375	15,240	18,321	17,430	106,605
PRATT COUNTY:							
Iuka—							
Daily average	31	26	29	31	28	40	
Month	961	728	899	930	868	1,200	5,586
EDWARDS COUNTY:							
Daily average	.....	.....	.....	.....	.....	.....	
Month	.....	.....	.....	.....	.....	.....	.....
RUSH COUNTY:							
Winget-Otis—							
Daily average	437	209	362	964	1,086	1,101	
Month	13,547	5,852	11,222	28,920	33,666	33,030	126,237
PAWNEE COUNTY:							
Daily average	87	110	52	69	84	107	
Month	2,697	3,080	1,612	2,070	2,604	3,210	15,273
SCOTT COUNTY:							
Daily average	1,021	890	756	969	839	1,022	
Month	31,651	24,920	23,436	29,070	26,009	30,660	165,746
RUSSELL COUNTY:							
Allen—							
Daily average	68	66	131	148	114	123	
Month	2,108	1,848	4,061	4,440	3,534	3,690	19,681
Atherton—							
Daily average	339	405	405	328	325	353	
Month	10,509	11,340	12,555	9,840	10,075	10,590	64,909
Big Creek—							
Daily average	1,131	964	940	1,050	805	556	
Month	35,061	26,992	29,140	31,500	24,955	16,680	164,328
Coralena—							
Daily average	893	752	805	857	590	708	
Month	27,683	21,056	24,955	25,710	18,290	21,240	138,934
Dumler —							
Daily average	355	303	363	297	191	200	
Month	11,005	8,484	11,253	8,910	5,921	6,000	51,573
Eichman—							
Daily average	335	254	272	292	185	226	
Month	10,385	7,112	8,432	8,760	5,735	6,780	47,204
Gorham and East Gorham—							
Daily average	4,307	4,090	4,640	4,046	4,212	4,218	
Month	133,517	114,520	143,840	121,380	130,572	126,540	770,369
Gurney and South Gurney—							
Daily average	473	356	864	860	714	444	
Month	14,663	9,968	26,784	25,800	22,134	13,320	112,669
Hall and North Hall—							
Daily average	1,114	1,114	1,111	1,162	1,026	971	
Month	34,534	31,192	34,441	34,860	31,806	29,130	195,963
Karst—							
Daily average	125	107	94	.....	.....	.....	
Month	3,875	2,996	2,914	.....	.....	.....	9,785
Letsch—							
Daily average	746	696	806	1,085	813	750	
Month	23,126	19,488	24,986	32,550	25,203	22,500	147,853

(Continued on Next Page)

light of Kansas field activity. This prolific pool was discovered in September, 1937, but intensive drilling did not get under way until this year. Producing from Misener sand, it soon became an important sand field in the heart of an Arbuckle lime district. Opened at Stanolind Oil & Gas Co. No. 1 Hartnett, NW NW SE section 23-24-11w, it has been given several extensions in all directions this year, with the greater development being to the north and east of the discovery. The area has been defined on three sides, leaving the east and northeast sectors for possible further extension. The June corporation commission report listed 32 producing wells in the pool, with total potential of 58,062 bbls. daily. With possible exception of one well, all are flowing wells. Extensions also were recorded during the half year in the Sittner, Drach, St. John, and Kipp areas of Stafford County.

Barton County, which became one of the more important Kansas producing areas in 1937, continued among the leaders this year. Two pool openers were completed and some of the older areas were extended and new pay zones uncovered.

The Hoisington pool of Barton County was opened late in January at Thayer Drilling Co. and James A. Brouk No. 1 Soderstrom, SE SE NW section 21-17-13w, in the north central part of the county. It had initial potential of 1,065 bbls. of oil from Kansas City lime topped at 3,210 feet, total depth 3,268 feet.

The North Ellinwood pool, the second Barton County strike of the year, was opened at Crown Petroleum Co. No. 1 Schartz, SW SE NW section 7-20-11w, completed during the week ending April 23. It was productive from Arbuckle lime found at 3,346 feet, total depth 3,352 feet, making initial potential of 473 bbls. of oil.

The bulk of Barton County activity was confined to three general sectors: the Silica-South Silica-Ellinwood district in the southeast corner of the county; the Kraft-Bloomer district to the north of that area, and the Trapp-Ainsworth field in the northern part of the county.

In Ellis County

Ellis County set the pace with five successful wildcat completions, two of these being classed as extensioners of older pools. Due largely to lack of pipe line outlets and other market facilities, development of the new areas was retarded and operations at Bemis and elsewhere in the county were greatly curtailed.

The North Toulon pool was the first new area to be opened in Ellis County this year. Watchorn Oil & Gas Co. No. 1 Brown, NE NE SE section 34-13-17w, opened this new area east of Hays when completed early in January. It made initial potential of 515 bbls. of oil, with much water, from Arbuckle lime at 3,511 feet, total depth 3,529 feet.

The South Burnett pool was opened the week ending May 21 at Duwe & Farris and Colonial Oil Co. No. 1 Hadley, SE NE SE section 12-11-18w. It made initial potential of 1,266 bbls. of 34.4-gravity oil at total depth of 3,332 feet in Arbuckle lime.

At the extreme north edge of the county, near the Rooks County line, the Richards pool was opened at Glimac Oil Co. and others No. 1 Richards, SE SW NW section 5-11-18w, a late January completion. It found Kansas City lime at 3,300 feet, was bottomed at 3,373 feet, and made initial potential of 941 bbls. of 36.8-gravity oil. Other Ellis wildcat producers to be completed were classed as extensioners of the Walters and Fairport pools.

Russell and Rice counties, among the leaders in Kansas field operations for several years, held their positions this year although they, too, suffered from the statewide slump in field activity. Four wildcats were completed as producers in Russell County, either opening new pools or extending old ones. Two wildcat pool openers were completed in Rice County. The Gorham and Trapp districts were the more active areas in Russell County, while the Geneseo, Wherry, Silica and Chase areas accounted for much of the Rice County work.

Big Wells at Habiger

The Stumps-Habiger area, straddling the Rice-Ellsworth County line, provided some of the bigger producers of the half year. Several wells of gusher production were completed in the Habiger sector, producing from Lansing-Kansas City lime. The 19 Habiger producers had total potential of 69,000 bbls. of oil daily on June 30. They were located in sections

KANSAS (Continued)

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Ttl. 6 mos. (bbls.)
Neidenthal—							
Daily average	307	308	269	269	229	292	
Month	9,517	8,624	8,339	8,070	7,099	8,760	50,409
Russell—							
Daily average	2,019	1,642	1,225	1,170	1,225	1,206	
Month	62,589	45,976	37,975	35,100	37,975	36,180	255,795
Sellens—							
Daily average	760	716	711	602	627	608	
Month	23,560	20,048	22,041	18,060	19,437	18,240	121,386
Sullivan—							
Daily average	3,764	3,512	4,096	3,228	2,437	2,816	
Month	116,684	98,336	126,976	96,840	75,547	84,480	598,863
Trapp—							
Daily average	11,345	10,256	9,885	10,680	8,167	7,680	
Month	351,695	287,168	306,435	320,400	253,177	230,400	1,749,275
Vaughn—							
Daily average	775	681	810	862	643	566	
Month	24,025	19,068	25,110	25,860	19,933	16,980	130,976
Fairport—							
Daily average	1,767	1,934	1,909	1,837	1,824	1,905	
Month	54,777	54,152	59,179	55,110	56,544	57,150	336,912
Miscellaneous—							
Daily average	502	477	535	580	748	547	
Month	15,562	13,356	16,585	17,400	23,188	16,410	102,501
NESS COUNTY:							
Aldrich—							
Daily average	.....	.....	.....	36	37	.....	
Month	.....	.....	.....	1,080	1,147	.....	2,227
ROOKS COUNTY:							
Westhusin—							
Daily average	341	231	211	491	413	270	
Month	10,571	6,468	6,541	14,730	12,803	8,100	59,213
Miscellaneous—							
Daily average	90	174	186	155	172	181	
Month	2,790	4,872	5,766	4,650	5,332	5,430	28,840
RENO COUNTY:							
Abbyville—							
Daily average	143	127	120	139	97	99	
Month	4,433	3,556	3,720	4,170	3,007	2,970	21,856
Burrton—							
Daily average	11,984	10,848	11,007	10,420	9,107	10,231	
Month	371,504	303,744	341,217	312,600	282,317	306,930	1,918,312
Hilger—							
Daily average	1,276	1,057	816	890	828	757	
Month	39,556	29,596	25,296	26,700	25,668	22,710	169,526
Lerado—							
Daily average	1,545	1,287	1,133	1,341	991	927	
Month	47,895	36,036	35,123	40,230	30,721	27,810	217,815
Miscellaneous—							
Daily average	42	30	65	71	66	51	
Month	1,302	840	2,015	2,130	2,046	1,530	9,863
RICE COUNTY:							
Chase and East Chase—							
Daily average	6,488	5,736	5,899	5,649	4,436	4,437	
Month	201,128	160,608	182,869	169,470	137,516	133,110	984,701
Edwards—							
Daily average	1,153	1,109	1,085	952	822	812	
Month	35,743	31,052	33,635	28,560	25,482	24,360	178,832
Geneseo—							
Daily average	2,437	2,139	2,168	2,660	2,129	2,202	
Month	75,547	59,892	67,208	79,800	65,999	66,060	414,506
Keesling—							
Daily average	1,010	900	947	958	790	835	
Month	31,310	25,200	29,357	28,740	24,490	25,050	164,147
Orth—							
Daily average	200	208	233	231	207	204	
Month	6,200	5,824	7,223	6,930	6,417	6,120	38,714
Ploog—							
Daily average	238	211	228	243	174	194	
Month	7,378	5,908	7,068	7,290	5,394	5,820	38,858
Raymond—							
Daily average	1,058	1,059	1,106	879	800	808	
Month	32,798	29,652	34,286	26,370	24,800	24,240	172,146
Silica—							
Daily average	16,114	14,769	13,335	13,382	10,879	10,631	
Month	499,534	413,532	413,385	401,460	337,249	318,930	2,384,090
Stumps—							
Daily average	1,050	865	898	1,045	928	1,179	
Month	32,550	24,220	27,838	31,350	28,768	35,370	180,096

(Continued on Next Page)

NEW! The Type NRM 124 LINK-BELT *Vibrating* SCREEN

● This new unit is recommended for shallow and medium depth drilling rigs. Present performances show it capable of handling the discharge from a pump as large as 7¼" x 18". Designed to incorporate all of the features of the standard Link-Belt mud screen, including fine mesh stainless steel screen cloth, rubber cushioned; adjustable feed; enclosed vibrator unit; unitized collecting tank; self-contained drive, etc. More economical in price and maintenance. Send for complete details. 7470

FOR SHALLOW to MEDIUM DEPTH DRILLING RIGS

LINK-BELT COMPANY

Philadelphia Houston Tulsa Dallas Los Angeles New York

31 and 32-17-10w, Ellsworth County, and sections 5 and 6-18-10w, Rice County.

The North Stumps pool of Ellsworth County was opened the week ending May 7 at Ralph Wixson and others No. 1 Peterman, SW cor. section 28-17-10w, 1 mile north of the Arbuckle lime producing sector of the Stumps field, which is east of the Habiger sector. The No. 1 Peterman made potential of 786 bbls. of oil daily from Arbuckle lime topped at 3,277 feet, total depth 3,306 feet.

Other discoveries of the half year included new producing sectors and extensions in the Aldrich district of Ness County; and pools or extensioners in Sumner, McPherson, Sedgwick, Chautauqua, Reno, and Cowley counties.

The Hittle-Arbuckle pool of Cowley County, which was opened late in May, was assuming more importance as the six months' period ended, due to extensions. It was discovered at McKnabb & Blair No. 1 Hittle, SW SW NE section 21-31-4, which made initial potential of 1,220 bbls. of oil from Arbuckle lime topped at 3,280 feet, total depth 3,284 feet. The Arbuckle producing area was due to be extended as the half year ended one-half mile southward at Trees Oil Co. No. 3 Lewis, NE NW NE section 28-31-4, which was showing as a producer in lime at 3,326½ feet. Older production in the area is from Kansas City lime.

Woodson County Active

The foremost development in eastern Kansas was in Woodson County, where township drilling at Neosho Falls, in the northeast corner of the county, and in the Draper pool and other newly opened sectors south of that town kept many independent operators busy. Numerous small wells producing from the first break in Mississippi lime were completed in that general sector. There also was some activity in western Woodson County, as operators sought more shoestring production along the shoreline play extending from Greenwood County.

Potential production of all Kansas wells attained a new record in June, the new figures for the state being 3,349,528 bbls. daily for 18,465 wells, according to E. G. Dahlgren, oil and gas conservation director for the corporation commission.

The frequent discovery of new pools and extensions kept the Kansas Nomenclature Committee busy naming, renaming and consolidating pools throughout the six months. One of the most recent acts of that group was to remove the Habiger sector from the Stumps pool, renaming it the Habiger pool. The area opened at J. J. Hall No. 1 Landon, SW SW SE section 11-15-14w, wildcat northwest of the Trapp field, was added to the Trapp field by the committee.

As the year rounded the half-way mark, it appeared that southwestern Kansas was due for considerable activity, especially when market conditions improve sufficiently to justify a resumption of widespread wildcatting and field activity. The Finney County discovery, plus a prospective discovery that was nearing completion in Ford County at midyear, were seen as incentives for further exploration in that part of the state. Northeastern Kansas, as yet an almost totally unexplored part of the state, also was expected to receive some attention from the wildcatters as soon as conditions warrant. There has been considerable leasing reported in that part of the state, and wildcat tests are listed in Riley and Jackson counties in the northeast area.

KANSAS

Summary of Wells Completed First Half of 1938

County—	Comp.	Prod.	Dry	Gas
Barber	17	1,641	8	6
Barton	138	84,420	33	1
Butler	31	1,495	7	0
Chase	2	152	1	0
Chautauqua	5	9	2	1
Clark	2	0	2	0
Cowley	34	5,251	17	1
Ellis	74	99,471	11	0
Ellsworth	27	8,586	8	0
Finney	1	600	0	0
Graham	1	709	0	0
Grant	7	0	0	7
Greenwood	17	340	5	0
Harper	1	0	1	0
Harvey	11	4,716	4	0
Jewell	1	0	1	0
Kearny	3	0	0	3
Kingman	1	0	0	1
Marion	5	85	3	0
McPherson	34	9,396	5	1
Meade	2	0	2	0
Montgomery	1	84	0	0
Ness	4	604	2	0
Pawnee	4	971	2	0
Pratt	8	164	5	2
Reno	27	10,276	8	2
Rice	80	50,860	15	2
Rooks	9	2,284	5	0
Rush	4	548	2	0

(Continued on Next Page)

KANSAS (Continued)

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Ttl. 6 mos. (bbls.)
Wenke—							
Daily average	212	194	198	199	157	151	
Month	6,572	5,432	6,138	5,970	4,867	4,530	33,509
Wherry and East Wherry—							
Daily average	5,474	5,114	4,413	4,171	3,772	3,692	
Month	169,694	143,192	136,803	125,130	116,932	110,760	802,511
Haferman—							
Daily average	262	199	211	198	130	181	
Month	8,122	5,572	6,541	5,940	4,030	5,430	35,635
Welch and North Welch—							
Daily average	442	480	443	440	460	345	
Month	13,702	13,440	13,733	13,200	14,260	10,350	78,685
Miscellaneous—							
Daily average	306	320	286	352	332	384	
Month	9,486	8,960	8,866	10,560	10,292	11,520	59,684
HARVEY COUNTY:							
Halstead—							
Daily average	871	922	827	726	554	517	
Month	27,001	25,816	25,637	21,780	17,174	15,510	132,918
Hollow-Nikkel—							
Daily average	2,171	2,598	2,839	2,021	2,021	3,045	
Month	67,301	72,744	88,009	60,630	62,651	91,350	442,685
Sperling—							
Daily average	172	154	158	164	121	29	
Month	5,332	4,312	4,898	4,920	3,751	870	24,083
McPHERSON:							
Chindberg—							
Daily average	520	441	484	391	383	376	
Month	16,120	12,348	15,004	11,730	11,873	11,280	78,355
Graber—							
Daily average	3,267	2,947	2,526	2,853	2,633	2,702	
Month	101,277	82,516	78,306	85,590	81,623	81,060	510,372
Johnson—							
Daily average	295	255	281	274	228	241	
Month	9,145	7,140	8,711	8,220	7,068	7,230	47,514
McPherson—							
Daily average	224	223	325	234	186	180	
Month	6,944	6,244	10,075	7,020	5,766	5,400	41,449
Ritz-Canton—							
Daily average	4,565	5,254	4,911	4,132	4,222	4,216	
Month	141,515	147,112	152,241	123,960	130,882	126,480	822,190
Voshell—							
Daily average	2,039	2,314	2,476	1,995	1,996	2,075	
Month	63,209	64,792	75,756	59,850	61,876	62,250	388,733
Miscellaneous—							
Daily average	94	65	97	57	65	69	
Month	2,914	1,820	3,007	1,710	2,015	2,070	13,536
SEDGWICK COUNTY:							
Eastborough—							
Daily average	665	644	660	688	695	691	
Month	20,615	18,032	20,460	20,640	21,545	20,730	122,022
Goodrich—							
Daily average	731	699	607	641	603	611	
Month	22,661	19,572	18,817	19,230	18,693	18,330	117,303
Greenwich—							
Daily average	929	990	1,004	1,038	1,028	1,018	
Month	28,799	27,720	31,124	31,140	31,868	30,540	181,191
Robbins—							
Daily average	440	452	437	446	422	426	
Month	13,640	12,656	13,547	13,380	13,082	12,780	79,085
Valley Center—							
Daily average	969	1,024	995	1,024	1,014	1,009	
Month	30,039	28,672	30,845	30,720	31,434	30,270	181,980
Miscellaneous—							
Daily average	46	131	99	72	88	81	
Month	1,426	3,668	3,069	2,160	2,728	2,430	15,481
STAFFORD COUNTY:							
Drach—							
Daily average	40	49	30	139	177	260	
Month	1,240	1,372	930	4,170	5,487	7,800	20,999
Jordon—							
Daily average	171	154	141	144	132	132	
Month	5,301	4,312	4,371	4,320	4,092	3,960	26,356
Richardson—							
Daily average	2,149	1,813	1,431	1,464	1,386	1,323	
Month	66,619	50,764	44,361	43,920	42,966	39,690	288,320
St. John—							
Daily average	547	504	397	473	440	451	
Month	16,957	14,112	12,307	14,190	13,640	13,530	84,736
Zenith—							
Daily average	283	240	237	362	697	819	
Month	8,773	6,720	7,347	10,860	21,607	24,570	79,877
Miscellaneous—							
Daily average	296	249	206	347	419	461	
Month	9,176	6,972	6,386	10,410	12,989	13,830	59,763
TREGO COUNTY:							
Daily average	281	296	301	294	252	261	
Month	8,711	11,297	9,331	8,820	7,812	7,830	53,801
SUMNER COUNTY:							
Churchill—							
Daily average	742	716	742	719	728	726	
Month	23,002	20,048	23,002	21,570	22,568	21,780	131,970
Oxford and West Oxford—							
Daily average	1,462	1,331	1,277	1,309	1,139	1,170	
Month	45,322	37,268	39,587	39,270	35,309	35,100	231,856
Padgett—							
Daily average	253	250	33	231	245	243	
Month	7,843	7,000	1,023	6,930	7,595	7,290	37,681
Wellington—							
Daily average	2,204	2,027	2,137	2,088	1,596	965	
Month	68,324	56,756	66,247	62,640	49,476	28,950	332,393
Zyba—							
Daily average	.....	.....	.....	.....	.....	.....	.....
Month	.....	.....	.....	.....	.....	.....	.....
Miscellaneous—							
Daily average	409	422	710	369	343	342	
Month	12,679	11,816	22,010	11,070	10,633	10,260	78,468
BUTLER COUNTY:							
Augusta—							
Daily average	962	991	977	969	987	983	
Month	29,822	27,748	30,287	29,070	30,597	29,490	177,014
North Augusta—							
Daily average	385	420	402	440	489	472	
Month	11,935	11,760	12,462	13,200	15,159	14,160	78,676
Blankenship—							
Daily average	225	251	246	242	234	236	
Month	6,975	7,028	7,626	7,260	7,254	7,080	43,223
Brandt—							
Daily average	30	116	134	170	191	186	
Month	930	3,248	4,154	5,100	5,921	5,580	24,933
Elbing—							
Daily average	1,505	1,414	1,423	1,340	1,340	1,349	
Month	46,655	39,592	44,113	40,200	41,540	40,470	252,570
Eldorado—							
Daily average	8,446	8,227	8,543	8,528	8,572	8,563	
Month	261,826	230,356	264,833	255,840	265,732	256,890	1,535,477
Fox-Bush—							
Daily average	412	454	439	428	449	444	
Month	12,772	12,712	13,609	12,840	13,919	13,320	79,172
Garden—							
Daily average	215	175	215	211	216	217	
Month	6,665	4,900	6,665	6,330	6,696	6,510	37,766
Haverhill—							
Daily average	278	282	277	258	255	253	
Month	8,618	7,896	8,587	7,740	7,905	7,590	48,336

(Continued on Next Page)

Russell	125	84,320	18	0
Sedgwick	13	1,821	7	0
Stafford	91	48,222	33	0
Stevens	15	0	1	14
Sumner	15	5,165	9	0
Trego	2	0	2	0
Woodson	46	764	13	1
Total	858	422,954	232	42

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	155	112,901	33	18
February	127	65,065	31	4
March	166	61,384	51	5
April	128	57,785	35	6
May	125	68,445	39	3
June	157	57,374	43	6
First half, 1938	858	422,954	232	42
First half, 1937	1,118	723,138	264	34
Difference	260	300,184	32	8

Results of Wildcat Drilling

County—	Oil and gas wells	Dry holes	Average depth of dry holes
Barber	0	5	4,908
Barton	2	11	3,408
Butler	0	2	1,896
Chase	0	1	2,612
Chautauqua	1	2	610
Clark	0	2	6,971
Cowley	1	8	3,261
Ellis	5	5	3,538
Ellsworth	2	1	3,416
Finney	1	0	0
Graham	1	0	0
Greenwood	0	1	1,980
Harper	0	1	5,198
Harvey	0	2	7,190
Marion	0	1	3,520
McPherson	2 (1 gas)	2	3,573
Ness	2	0	0
Pawnee	0	1	3,825
Pratt	1 (gas)	5	4,636
Reno	1	5	4,186
Rice	2	7	3,354
Rooks	0	4	3,678
Rush	0	1	3,629
Russell	4	10	3,316
Sedgwick	1	3	3,887
Stafford	4	20	3,862
Sumner	1	4	3,982
Trego	0	1	4,057
Woodson	0	5	1,614
Total	31	110	

Average depth oil and gas wells, feet	3,534
Average depth of dry holes, feet	3,597
Percentage of oil wells	20.6
Percentage of gas wells	1.4
Percentage of dry holes	78.0

Compressor and Dehydration Plant for Bow Island

CALGARY, Alberta.—For the first time since 1930 when repressuring of the depleted Bow Island gas field was begun, gas in commercial quantities will be withdrawn late this fall from the field. Since 1930 repressuring with Turner Valley waste gas at the rate of approximately 5,000,000 feet a day has gone on steadily. As a result, however, of decline in Turner Valley pressures, the stored gas will, in the coming winter, be used to some extent to meet peak load demands on the Canadian Western Natural Gas, Light, Heat & Power Co. system.

The Bow Island discovery well was drilled in 1910, striking a strong gas flow. The Canadian Western company was organized, and 10 additional wells drilled. In 1912 a 170-mile transmission line from the field to Calgary was completed, service to Lethbridge and Calgary being started in August. Later, a number of smaller communities convenient to the transmission line were served.

From Turner Valley gas was transported to a point north of Burdett, arriving at 60 pounds pressure. A large compressor, operated by gas engines, increased the pressure in two stages to 500 pounds, cooled toe gas to 50 degrees and forced it into the wells. During the past 8 years some 17,000,000,000 feet of gas has been pumped into the field, raising the pressure from 248 to nearly 500 pounds.

Preparatory work, at a cost of approximately $25,000, is being completed in the Bow Island field for taking production from the field next winter. Outgoing field lines are being renovated, drips installed and metering devices regulated. Late this fall a compressor and dehydration plant will be installed in the Turner Valley field of sufficient capacity to pump all gas required by the Canadian Western system except in peak load periods when gas will be withdrawn from the Bow Island field. To be prepared for these peaks, repressuring at Bow Island will likely be suspended from December to April, but will be carried on, so long as gas is available, during the remainder of the year.

Large quantities of gas are still available in Turner Valley and the booster plant is required merely to deliver the gas to the system at the requisite pressure.

KANSAS (Continued)

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Ttl. 6 mos. (bbls.)
Keighley—							
Daily average	259	263	256	251	233	231	
Month	8,029	7,364	7,936	7,530	7,223	6,930	45,012
Kramer—							
Daily average	151	171	204	209	180	184	
Month	4,681	4,788	6,324	6,270	5,580	5,520	33,163
Leon—							
Daily average	123	138	130	127	130	126	
Month	3,813	3,864	4,030	3,810	4,030	3,780	23,327
McCullough—							
Daily average	244	255	528	433	426	439	
Month	7,564	7,140	16,368	12,990	13,206	13,170	70,438
Potwin—							
Daily average	1,038	10,07	972	999	1,008	997	
Month	32,178	28,196	30,132	29,970	31,248	29,910	181,634
Reynolds-Schaeffer—							
Daily average	342	312	303	327	289	294	
Month	10,602	8,736	9,393	9,810	8,959	8,820	56,320
Smock-Sluss—							
Daily average	173	175	183	180	175	177	
Month	5,363	4,900	5,673	5,400	5,425	5,310	32,071
Stern—							
Daily average	215	208	214	193	189	190	
Month	6,665	5,824	6,634	5,790	5,859	5,700	36,472
Young—							
Daily average	109	102	78	84	102	98	
Month	3,379	2,856	2,418	2,520	3,162	2,940	17,275
Miscellaneous—							
Daily average	608	691	795	486	469	418	
Month	18,848	19,348	24,645	14,580	14,539	12,540	104,500
GREENWOOD, WOODSON AND LYON COUNTIES:							
Atveo, Pixley, Browning, Teeter and Scott Trend—							
Daily average	1,911	1,953	2,063	2,073	1,908	1,969	
Month	59,241	54,684	63,953	62,190	59,148	59,070	358,286
Burkett, Thrall, Polhamus and Sallyards Trend—							
Daily average	1,292	1,017	1,309	1,296	1,290	1,286	
Month	40,052	28,476	40,579	38,880	39,990	38,580	226,557
Virgil and North Virgil—							
Daily average	1,435	1,259	1,545	1,453	1,137	1,219	
Month	44,485	35,252	47,895	43,590	35,247	36,570	243,039
Seeley-Wick—							
Daily average	993	1,020	1,060	1,004	981	994	
Month	30,783	28,560	32,860	30,120	30,411	29,820	182,554
Demalorie-Sowder—							
Daily average	408	441	460	434	480	472	
Month	12,648	12,348	14,260	13,020	14,880	14,160	81,316
Winterscheid—							
Daily average	685	712	729	756	743	748	
Month	21,235	19,936	22,599	22,680	23,033	22,440	131,923
Madison—							
Daily average	651	659	641	646	640	650	
Month	20,181	18,452	19,871	19,380	19,840	19,500	117,224
Quincy—							
Daily average	1,094	1,088	1,098	1,103	990	982	
Month	33,914	30,464	34,038	33,090	30,690	29,460	191,656
Hamilton—							
Daily average	362	350	362	385	361	367	
Month	11,222	9,800	11,222	11,550	11,191	11,010	65,995
Lamont—							
Daily average	361	382	368	328	350	339	
Month	11,191	10,696	11,408	9,840	10,850	10,170	64,155
Miscellaneous—							
Daily average	1,254	1,142	1,315	1,363	1,270	1,262	
Month	38,874	31,976	40,765	40,890	39,370	37,860	229,735
FINNEY COUNTY:							
Daily average	.....	.....	.....	.....	.....	120	
Month	.....	.....	.....	.....	.....	3,600	3,600
EASTERN COUNTIES*:							
Daily average	6,169	6,366	6,940	7,010	6,722	6,916	
Month	191,239	178,248	215,140	210,300	208,382	207,480	1,210,789
Daily average	176,405	166,386	166,864	165,612	148,864	150,515	162,424
First six months 1938	5,468,555	4,658,813	5,172,784	4,968,360	4,614,784	4,515,450	29,398,746
First six months 1937	5,244,673	5,236,644	5,866,936	5,827,230	6,241,881	5,908,470	34,325,835
First six months 1936	4,343,751	4,002,348	4,675,296	4,835,370	4,754,687	4,442,040	27,053,492
First six months 1935	4,190,673	4,107,292	4,630,098	4,378,950	4,605,236	4,427,670	26,339,919
First six months 1934	3,359,842	3,171,084	3,956,778	3,935,130	4,076,934	3,962,460	22,462,228

*Miami, Franklin, Linn, Anderson, Bourbon, Allen, Neosho, Wilson, Labette, Montgomery, Eastern Elk, and Chautauqua counties.

Performance-

LINK-BELT POWER TRANSMISSION EQUIPMENT

● The Link-Belt line of anti-friction and babbitted bearing power transmission units is daily proving its reliability to critical users.

Inbuilt values, built and backed by Link-Belt are demonstrating their worth in actual *performance*. Send for General Catalog No. 700.

Link-Belt Company, 2410 W. 18th St., Chicago; Houston; Dallas; Tulsa; Los Angeles; New York; or any of our other offices, located in principal cities. 7423

Semi-Annual Review

DISCOVERIES MADE IN 4 COUNTIES IN NORTH AND CENTRAL TEXAS

By MITCHELL TUCKER

Exploration in Central and West Central Texas during the first half of 1938 led to the discovery and development of 11 new producing areas, several of which may prove to be major oil fields.

The Oplin field in southwestern Calahan County, producing from the Ellenburger of Lower Ordovician at a depth of 4,375 feet, was discovered early in April by Hal Hughes and others No. 1 Poindexter, which blew in over the derrick and gave some promise of being an important discovery. The well was completed for 897 bbls. of oil in nine hours or at the rate of 2,400 bbls. per day. However, by the end of the month the flow had dropped to about 5 bbls. per hour. Three other tests were staked following the discovery.

In Haskell County, the Pardue field was discovered about the first of May by the Forest Development Co. and J. W. McMillen No. 1 A. E. Pardue. Located in the south central part of the county, the field is producing from the Adams Branch lime at a depth of 2,800 feet. The discovery well was troubled with bottom-hole water, and was not a very large producer. However, later drilling has indicated that this well was on the flank of the structure and the majority of the field will lie to the north.

Further indicating the future possibilities of Ordovician production in Central Texas, in February the Lone Star Gas Co. deepened No. 1 Cozart in the Cisco Lake region of north central Eastland County, to extend the deep production 1 mile from the discovery well, and stimulate future development. The Cozart well gauged 288 bbls. per day on official test at a total depth of 3,971 feet, after a 1,000-gallon acid treatment. Six other wells have since been drilled on the structure, the largest being Lone Star Gas Co. No. 1 Thomas, which gauged 1,183 bbls. per day.

WEST CENTRAL TEXAS FIELDS DISCOVERED FIRST HALF 1938

Field	County	Discovery well	Date	Depth	Production gauge
Ivy	Shackelford	Owens-Snebold No. 1 H. B. Haterius	January	3,211-18	878 bbls. 15 hrs.
Southern part of county	Haskell	Brown Eagle Oil Co. & S. B. Roberts No. 1 T. G. Hendricks	February	1,698-1,721	30 bbls. 4 hrs.
Cisco Lake field	Eastland	Lone Star Gas Co. No. 1 Cozart	February	Ellenburger lime 3,971	288 bbls. per day
Centerline field	Jones	W. K. & R. D. Jones No. 1 Ora Neas	March	1,953-63	322 bbls. 16 hrs.
¼ mi. E of Noodle Creek field	Jones	Humble Oil & Refg. No. 1 I. N. Irwin	April	2,550-55	73 bbls. 5 hrs.
Oplin	Callahan	Hal Hughes et al No. 1 Poindexter	April	Ordovician 4,368-89	896 bbls. 9 hrs.
Pardue	Haskell	Forest Dev. Co. and J. W. McMillen No. 1 A. E. Pardue	.....	2,795-2,815	.....
NW part of county	Jones	Mack Hays & Montour May Prod. Co. No. 1 Chittenden	May	3,004-22	144 bbls. 8 hrs.
10 mi. NW of Breckenridge	Stephens	Horwitz, Odom & Perkins No. 1 Dance	May	3,563-93	.....
2 mi. NE of Putnam	Callahan	Wittmer Oil & Gas Properties No. 1 Williams	June	3,235-39	10 bbls. 4 hrs.
In McMillan pool (deeper)	Runnels	Homer Price et al No. 1 J. C. Beddo	June	3,515	.....

Most Active Fields

The Avoca pool of northeastern Jones County and the Ivy pool of northwestern Shackelford County experienced important development, both in inside drilling and extension activity, during the past six months. At the start of January, Avoca had only three oil wells, but had 23 oil wells when this was written. Showing similar development, the Ivy pool consisted of one well at the start of the year and it later had two producing horizons and six completed wells. Discovered at a depth of 1,933 feet in 1937, the field was opened to 3,200-foot production in January, 1938, which will greatly increase the number of wells to be drilled within its area.

Continued Wildcatting

Wildcat activity in this area remains about as usual as the year passes the half-way mark, for there are now some 85 or 90 wildcats drilling in the 16 or 17 Central and West Central Texas counties. With the development of deep production over the past year in the K.M.A. field and the two Ordovician discoveries in the west central area, continued deep drilling can be predicted for the area in the next few months however, at the same time shallow exploration in the Pennsylvanian formation will probably show no marked decline.

CENTRAL TEXAS

Daily Average and Monthly Production in First Six Months of 1938

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Ttl. 6 mos. (bbls.)
BROWN COUNTY:							
Daily average	1,601	1,605	1,691	1,634	1,590	1,556	
Month	49,635	44,943	52,422	49,027	49,291	46,689	292,007
CALLAHAN COUNTY:							
Daily average	1,290	1,289	1,328	1,284	1,250	1,262	
Month	39,994	36,100	41,176	38,529	38,761	37,872	232,432
COLEMAN COUNTY:							
Daily average	1,010	1,033	1,062	1,017	923	1,026	
Month	31,319	28,920	32,929	30,515	28,624	30,777	183,084
COMANCHE COUNTY:							
Daily average	50	56	63	65	64	62	
Month	1,561	1,577	1,944	1,958	1,995	1,860	10,895
EASTLAND COUNTY:							
Daily average	2,741	2,708	2,751	2,711	2,730	2,753	
Month	84,959	75,814	85,274	81,330	84,645	82,586	494,608
ERATH COUNTY:							
Daily average	83	93	89	79	70	80	
Month	2,575	2,591	2,748	2,366	2,169	2,396	14,845
FISHER COUNTY:							
Daily average	3,311	3,158	3,358	3,444	3,119	3,309	
Month	102,645	88,437	104,090	103,319	96,695	99,271	594,457
HASKELL COUNTY:							
Daily average	12	22	21	19	86	79	
Month	385	605	649	566	2,677	2,367	7,249
JACK COUNTY (South):							
Daily average	7,901	7,613	7,308	7,097	6,497	6,517	
Month	244,931	213,248	226,561	212,903	201,392	195,514	1,294,549
JONES COUNTY:							
Daily average	5,295	5,152	5,482	5,394	4,972	5,183	
Month	164,141	144,250	169,949	161,816	154,136	155,486	949,778
PALO PINTO COUNTY:							
Daily average	282	296	303	265	304	261	
Month	8,731	8,289	9,400	7,953	9,429	7,829	51,631
SHACKELFORD COUNTY:							
Daily average	6,154	5,945	5,948	5,857	5,903	5,676	
Month	190,762	166,464	184,400	175,726	183,000	170,270	1,070,622
STEPHENS COUNTY:							
Daily average	3,933	3,807	3,749	3,764	3,707	3,627	
Month	121,910	106,589	116,234	112,913	114,925	108,812	681,383
TAYLOR COUNTY:							
Daily average	66	67	66	61	65	59	
Month	2,046	1,876	2,042	1,842	2,017	1,767	11,590
THROCKMORTON COUNTY:							
Daily average	347	332	339	324	304	331	
Month	10,765	9,302	10,514	9,718	9,422	9,938	59,659
YOUNG COUNTY (South):							
Daily average	4,975	4,928	5,116	5,087	4,898	4,480	
Month	154,219	137,995	158,600	152,614	151,834	134,400	889,662
Daily average	39,051	38,107	38,675	38,103	36,484	36,261	37,781
First six months 1938	1,210,578	1,067,000	1,198,932	1,143,095	1,131,012	1,087,834	6,838,451
First six months 1937	1,030,593	992,761	1,139,200	1,116,447	1,183,185	1,172,721	6,634,907
First six months 1936	885,763	802,894	870,511	878,250	935,983	916,530	5,289,931
First six months 1935	904,766	778,204	905,758	862,290	908,889	875,220	5,235,127
First six months 1934	835,326	819,308	919,243	856,440	913,260	900,300	5,243,877

NORTH TEXAS DISTRICT

The most important developments in the North Texas district in the first six months of 1938 were the rapid extensions of the K.M.A. field in Wichita County, and the discovery of similar deep Strawn production in the Panther pool in Archer County.

K.M.A. started off the year with only 89 producing wells, three rigs up and 59 wells drilling. There were approximately 50,000 proven acres at that time, with the field undefined on all sides. On July 1 there were 547 producing wells, and the field is rather well defined on all sides, with approximately 80,000 acres proven. On the 20-acre spacing pattern adopted for the field, continued inside development may be expected for several years.

From the point of its early development, the field has spread more to the north and west than it has in the other two directions. The southern end of the field was extended down across the Archer County line, but there was stopped by several dry holes. On the east side, wells do not have very high potentials due to a thinning of the sandy lime section, consequently, expansion in that direction has almost reached its limit. This leaves the north and west portions of the field for greatest future expansion. One of the field's major set-backs was the failure of Geier Brothers and

Jackson No. 1 Ancell, in the extreme western edge of the field, Abstract 793, a mile southwestern outpost at that time. The test encountered salt water in the regular K.M.A. section. The next trend of expansion turned to the north, and it was in that direction that the majority of the field's new proven acres were added. Late in February Rathke Oil Co. brought in No. 1 Waggoner, a good producer, 3 miles northwest of the nearest production, which was Joe Worsham No. 1 Waggoner, itself a 2-mile outpost which had just been completed. Many other one-half and 1-mile outposts added hundreds of acres to the field, and edge wells continue to push the limits outward on all sides in an effort to definitely establish field limits.

Within the half year K.M.A. has not only expanded in territory, but also in capital and investment. With primary exploration and development being done by small companies and independents, several of the major oil companies later bought into the field. There are now two gasoline plants operating and three others are under construction. All these plants are to be equipped with high-pressure compression equipment in order to provide facilities for future pressure maintenance projects in the field.

WEST CENTRAL AND NORTH TEXAS

Completions by Counties First Half 1938

County—	Comp.	Prod.	Dry	Gas
Archer	103	15,085	48	0
Baylor	4	0	4	0
Brown	23	554	11	0
Callahan	33	947	29	1
Coleman	13	38	9	2
Clay	86	9,752	27	0
Comanche	1	20	0	0
Cooke	94	6,756	22	0
Denton	8	0	8	0
Eastland	14	1,566	6	3
Foard	5	365	2	2
Grayson	3	0	3	0
Haskell	4	558	1	0
Hood	1	0	1	0
Jack	130	21,673	40	4
Knox	1	0	1	0
Mills	1	0	1	0
Montague	59	5,268	16	1
Palo Pinto	17	20	13	3
Shackelford	102	5,037	61	3
Stephens	8	74	4	1
Throckmorton	10	0	10	0
Wichita	582	379,112	102	0
Wilbarger	43	8,370	17	0
Young	196	27,794	90	2
Total first half 1938	1,541	482,989	526	22

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	270	65,546	84	4
February	179	39,373	68	2
March	276	88,212	95	6
April	255	89,440	83	1
May	320	99,312	96	2
June	304	101,106	100	7
Total first half 1938	1,541	482,989	526	22
Total first half 1937	1,371	114,753	609	25
Difference	170	278,236	83	3

Discoveries

Influenced by the flush Strawn production in the K.M.A. field deep wildcatting spread throughout almost all of North Texas. About the middle of March, Archer County was given a new pool when Hull & Silk (now Blackwell Oil & Gas Co. and Helmerich & Payne) No. 1 Waggoner, was completed for 127 bbls. of oil per hour, or at the rate of more than 3,000 bbls. per day. Immediate offsetting and extension work followed, until now the Panther deep pool has a total of seven producers. Production is from the same Strawn section found at K.M.A. This discovery immediately threw Archer County into an open wildcat drilling campaign. As a result several other new producing spots were discovered in the county, both from the Strawn and from the Ordovician formations.

Adams Oil & Gas Co. No. 1 T. Moer, 1 mile east of Scotland, opened a new producing area in late May, when it made a small well from the Strawn formation. Troubled with bottom-hole water, this well has not as yet been offset.

Ordovician production was discovered in Archer County by an offset to the discovery well in the Panther pool. Blackwell Oil & Gas Co. and Helmerich & Payne No. 2 Wilson, drilled over 100 feet of saturated but slightly porous section to the present depth of 5,100 feet in the Ellenburger, and are attempting to complete the well as a producer.

Cooke County

A discovery of major importance was made in northeastern Cooke County by Sinclair Prairie Oil Co. early in June when No. 1 J. M. Best, in the T. Toby

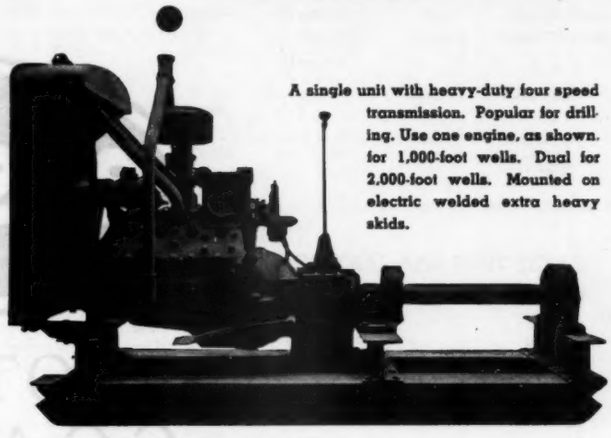
(Continued on Page 192)

Hot Weather Proof!

GENERAL POWER UNITS

For

PUMPING
DRILLING GENERATING



Radiator especially designed for stationary work. Tanks are all brass, with copper core. Frontal cooling area has 684 sq. in. of exposed core. Cooling system has water capacity of ten gallons.

A single unit with heavy-duty four speed transmission. Popular for drilling. Use one engine, as shown, for 1,000-foot wells. Dual for 2,000-foot wells. Mounted on electric welded extra heavy skids.

OIL FIELD SPECIAL

General Power units have been establishing outstanding records for economical operation on stationary power installations. Records show that with ordinary maintenance these units give 4,000 to 6,000 hours service before an overhaul is required. Then the regular Ford engine exchange plan puts a factory conditioned engine back in the unit.

Complete units include new truck type engine, double fan belts, 6-blade 20-inch aluminum fan, special designed heavy-duty radiator for industrial use. Oil bath air cleaner, starter, 17-plate battery. Gasoline units include suction type governor, gasoline carburetor, gasoline pump. Natural gas units include flyball governor, combination carburetor, valve box, gasometer type regulator.

GENERAL POWER, Inc.

QUAPAW, OKLAHOMA PHONE 64

This is *ECOLITE* 50S

Available at Supply Stores

A SAFE ELECTRIC LANTERN WITH A POWERFUL LONG SPOT

No other lantern answers the need of Pipe Line Men, Gaugers and Pumpers as does Ecolite 50S. It's easy to carry and use. Throws a very bright beam—is perfectly safe in presence of inflammable gases and vapors and comes recommended by Underwriters' Laboratories.

ECONOMY ELECTRIC LANTERN CO.
325 W. Huron St., Chicago, Ill.

Bulletin No. 2

ARCOS ELECTRODES

CHROMEND for Stainless
ALUMEND for Aluminum
NICKELEND for Nickel
BRONZEND for Bronze
MANGANEND for Hardness
CAREND for Steel
REFORMEND for Cast iron

SEND US the analysis of the stainless steel or below listed base metal you desire to weld, and WE WILL SEND YOU trial electrodes together with a copy of the unique Arcos Technical Bulletin No. 2 as illustrated. Write today.

STAINLESS ELECTRODES

ARCOS CORPORATION
DEPT. D. 401 N. BROAD ST. PHILA., PA.

RUST BAN • RUST BAN • RUST BAN • RUST BAN • RUST BAN • RUST BAN

RUST-BAN

PROTECTIVE COATINGS
for the Oil Industry

- The most complete line of rust preventives on the market. Fifty products for almost every service condition encountered in the oil industry.
- Proven products. All claims for effective rust prevention have been substantiated by years of service in the oil country.
- A staff of trained service engineers for assistance in solving your corrosion problems.
- Write for our General Bulletin 200-G1 which tells the Rust-Ban story.

HUMBLE OIL & REFINING CO.
HOUSTON • TEXAS

RUST BAN • RUST BAN • RUST BAN • RUST BAN • RUST BAN • RUST BAN

Semi-Annual Review

WOODBINE, LOWER TRINITY SEARCH RESULTED IN FEW SUCCESSES

By MITCHELL TUCKER

The discovery of three producing areas in East Central Texas and the continued wildcat exploration for Woodbine and Lower Trinity sands marked the majority of activity in the eastern Texas district during the first half of 1938.

The East Texas field proper continued to lead all other producing areas of the world throughout the half-year period during which time a total of 1,113 wells was completed to bring the total number of wells in the field to 26,035 as of July 1.

EAST AND EAST CENTRAL TEXAS NEW DISCOVERIES FIRST HALF 1938

County—	Field—	Discovery well—	Survey—	Production—	Date—	Formation—
Anderson	.....	H. L. Hemby No. 1 G. E. Parsons	John Gossel	21.5 bbls. distillate and 8,000,000 ft. gas	January	Upper Woodbine
Houston	Navarro Crossing	Humble O. & R. Co. and Sun Oil Co. No. 1 H. H. Dailey	J. J. La Riviere	296 bbls. day	April	Woodbine
Smith	.....	Hunt Oil Co. No. 1 Bradley	T. P. Payne	6 bbls. distillate per hour	June	Glen Rose (Lower Trinity)

New Discoveries

Late in January, H. L. Hemby No. 1 G. E. Parsons opened a small gas-distillate area in the John Gossell Survey near Elkhart in Anderson County. The well tested about 20 bbls. of distillate and 10,000,000 feet of gas per day from the Upper Woodbine sand at about 5,360 feet. Not being as large as either the Grapeland or Percilla fields to the southwest, and having no pipe line outlet, no further development has been made in this area.

The Navarro Crossing field was discovered in northwestern Houston County early in April by the Humble Oil & Refining Co. and the Sun Oil Co., main lease holders in the area, in their No. 1 H. H. Dailey, J. J. La Riviere Survey. The well officially gauged 296 bbls. of oil per day from the Woodbine sand, topped at 5,789 feet. Because of high gas-oil ratios and early salt water showings, the field's potentiality is not yet established.

In Smith County, Hunt Oil Co. discovered, early in June a small gas-distillate area when its No. 1 Bradley, a deep exploratory test, which had been drilling for several months, came in as a 6 bbl. per hour distillate producer from the Glen Rose formation bottomed at 7,528 feet. Similar to the first well at Opelika, in Henderson County, No. 1 Bradley is producing through stuck drill pipe cemented 4 feet off bottom. An offset will probably be drilled as was the case at Opelika, before the actual potentialities of the structure can be determined.

Flag Lake Field

The Flag Lake pool of northwestern Henderson County, discovered late in 1937, which shows promise of being an important field along the Balcones Fault system, has seen the most rapid and extensive development of any East Central Texas field this year. With only the discovery well completed at the start of the year, which gauged 128 bbls. of oil per day, the field has grown until there are now eight producing wells, about five tests drilling, and approximately six locations staked.

EAST CENTRAL TEXAS

Daily Average and Monthly Production in First Six Months of 1938

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Ttl. 6 mos. (bbls.)
CORSICANA:							
Daily average	405	418	422	432	428	417	
Month	12,561	11,712	13,071	12,966	13,276	12,521	76,107
CURRIE:							
Daily average	111	107	110	110	89	107	
Month	3,445	3,009	3,412	3,311	2,748	3,216	19,141
MEXIA:							
Daily average	1,857	1,903	1,893	1,877	1,895	1,862	
Month	57,558	53,287	58,678	56,312	58,751	55,860	340,446
POWELL:							
Daily average	2.084	1,988	2,036	2,023	2,007	2,033	
Month	64,613	55,662	63,118	60,684	62,204	60,992	367,272
SULPHUR BLUFF:							
Daily average	4,260	4,074	3,184	4,149	4,717	4,494	
Month	132,075	114,075	98,691	124,489	146,221	134,823	750,374
VAN:							
Daily average	18,042	16,081	16,768	16,567	14,295	14,814	
Month	559,304	450,265	519,805	497,009	443,141	444,427	2,913,951
BOGGY CREEK:							
Daily average	334	343	332	373	325	325	
Month	10,353	9,614	10,285	11,189	10,087	9,747	61,275
CAYUGA:							
Daily average	9,140	8,582	8,738	8,784	7,650	7,411	
Month	283,328	240,309	270,882	263,526	237,161	222,336	1,517,542
FLAG LAKE:							
Daily average	94	86	244	290	313	319	
Month	2,900	2,400	7,554	8,700	9,694	9,570	40,818
LONG LAKE:							
Daily average	1,471	1,432	1,484	1,520	1,347	1,401	
Month	45,612	40,099	45,989	45,597	41,753	42,037	261,087
RODESSA:							
Daily average	21,070	29,449	36,205	37,608	37,121	34,619	
Month	653,159	824,570	1,122,367	1,128,249	1,150,760	1,038,576	5,917,681
TALCO:							
Daily average	25,834	24,061	27,054	26,516	24,218	24,110	
Month	800,870	673,709	838,683	795,471	750,769	723,307	4,582,809
TRINITY:							
Daily average	666	626	605	579	515	522	
Month	20,637	17,524	18,744	17,387	15,965	15,654	105,911
MISCELLANEOUS:							
Daily average	471	498	518	526	483	486	
Month	14,603	13,941	16,057	15,786	14,968	14,572	89,927
Daily average	85,839	89,649	99,591	101,356	95 403	92,921	94,168
First six months 1938	2,661,018	2,510,176	3,087,336	3,040,676	2,957,498	2,787,638	17,044,342
First six months 1937	3,269,687	3 057 810	3,760,600	3,531,526	3,900,811	3,782,195	21,302,629
First six months 1936	1,379,138	1,383,241	1,513,836	1,529,814	1,636,711	1,592,121	9,034,861

Miscellaneous pools and their total production for the first six months were: Bolivar, 573 bbls.; South Bosque, 2,043 bbls.; Collinsville, 1,140 bbls.; Lott, 3,097 bbls.; Opelika, 1.044 bbls.; Post Oak, 399 bbls.; Pottsboro, 761 bbls.; Richland, 3 531 bbls.; Wortham, 15,409 bbls.; Ginter, 2,898 bbls.; Grapeland, 10,847 bbls.; Huntington, 1,554 bbls.; Nacogdoches, 227 bbls.; Panola, 5,002 bbls.; Percilla, 3,833 bbls.; Potter, 17,119 bbls.; Rusk, 10,590 bbls.; Shelbyville, 300 bbls.; Waskom, 9,560 bbls.; total, 89,927 bbls.

EAST TEXAS

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Ttl. 6 mos. (bbls.)
Daily average	456,959	422 845	433,562	432,457	372,385	363,800	
Month	14,165,719	11,839,671	13,440,409	12,973,723	11,543,936	10,914,010	74,877,468

EAST CENTRAL AND EAST TEXAS

Summary of Wells Completed First Half of 1938

County—	Comp.	Prod.	Dry	Gas
Anderson	30	1,198	2	12
Angelina	9	10	8	0
Bowie	2	0	2	0
Camp	1	0	1	0
Cherokee	9	48	8	0
Dallas	1	0	1	0
Delta	2	0	2	0
Ellis	1	0	1	0
Falls	2	0	2	0
Franklin	25	5,127	3	0
Freestone	3	162	1	0
Gregg	557	31,167	8	0
Henderson	25	2,408	11	0
Hill	1	0	1	0
Houston	7	543	4	0
Leon	2	0	1	1
Limestone	3	0	3	0
McLennan	2	0	2	0
Madison	3	0	3	0
Navarro	6	48	4	0
Red River	1	0	1	0
Rusk	372	18,572	6	0
Smith	17	789	3	0
Titus	33	8,942	2	0
Trinity	4	0	4	0
Upshur	99	4,798	5	0
Van Zandt	5	24	4	0
Total first half 1938	1,222	73,836	93	13

Completions by Months

Month—	Comp.	Prod.	Dry	Gas
January	201	13,817	16	1
February	215	13,035	14	2
March	227	13,449	12	4
April	210	11,787	16	2
May	180	9,954	16	2
June	189	11,794	19	2
Total first half 1938	1,222	73,836	93	13
Total first half 1937	1,384	111,243	82	8
Difference	162	37,407	11	5

Woodbine and Trinity Wildcat Exploration

Woodbine sand wildcatting continued during the past six months in practically all of the East Central Texas counties. Approximately 75 wildcats with Woodbine sand production as their objectives were completed, either as small producers or as dry holes throughout the 28 or 30 counties of the eastern Texas area.

Several deep exploratory tests to the Lower Marine Trinity sands were abandoned during the last half year. On the eastern flank of the Mexia field of Limestone County, Pure Oil Co., after discontinuing further drilling last December, unsuccessfully tried for production through perforations in the casing as the hole was plugged back, however, all attempts failed and the hole was abandoned after having drilled to a depth of 8,847 feet.

Also in Limestone County, Stanolind Oil & Gas Co. No. 1 Tenny Norris, K. Thrasher Survey, 5 miles north of Kosse, started plugging back up the hole at about the middle of March after having found the lower Marine formations barren to a total depth of 9,951½ feet. The well tested all possible upper formations and was finally plugged and abandoned in the latter part of April.

Gregg County

In Gregg County, Humble Oil & Refining Co. and Gulf Oil Corp. No. 1 E. Robertson, M. Mann Survey,

deep Trinity test on the east flank of the East Texas field, also found the Lower Marine Trinity formations unproductive after drilling to a total depth of 10,275 feet, a new deep record for eastern Texas. The test drilled through several unidentified formations including what was believed by some to be the Permian. In plugging back, the upper formations proved more productive and in the early part of June the well was completed for about 3,400,000 feet of gas and a small amount of distillate from the Glen Rose formation from 7,244-85 feet.

Two deep Trinity tests were abandoned in the northeastern area, one each in the Talco and the Sulphur Bluff fields. At Talco, Ajo Oil Co. abandoned No. 1 Sanders, deepened from 4,371 feet to 5,906 feet and failed to find production. In the Sulphur Bluff field of Hopkins County, Walter Goldston abandoned No. 1 Smith after drilling to a depth of 6,600 feet.

Another deep Trinity test which failed was the Tom Hunter American Liberty Oil Co. No. 1 J. P. Carter, 1 mile north of Kelsey in Upshur County. Originally contracted to go below 10,000 feet, the well was abandoned in June at a depth of 9,538 feet, having encountered no profitable shows.

North Texas Review

(Continued from Page 189)

Survey, just south of the Red River, was completed, an estimated 2,000-bbl. producer, from the 4,900-foot Strawn level. On a one-hour official gauge, the well flowed 175 bbls. Offsets have been staked, and the actual potentialities of this new discovery will be determined during the last half of 1938.

Wilbarger County

A small pool was discovered in Wilbarger County in April by Phillips Petroleum Co. and King Oil Co. No. 1 W. T. Way, 2½ miles southeast of the South Vernon pool, when it gauged 176 bbls. of oil per day from the 2,900-foot level.

Jack County received a new producing area early in January when Hanlon-Buchanan completed No. 1 E. M. Meyers for a small producer from the Bryson sand, 3,432-50 feet. This well is about 7 miles north of Jacksboro.

NORTH TEXAS NEW DISCOVERIES FIRST HALF 1938

Field	County	Discovery well	Date	Depth	Initial production
7 mi. N of Jacksboro	Jack	Hanlon-Buchanan No. 1 E. M. Meyers	January	3,432-50	20 bbls. 3 hrs.
Panther	Archer	Hull & Silk No. 1 Wilson	March	4.800	3,000 bbls. day
	Archer	Adams Oil & Gas No. 1 Moer	May	4.800	Small producer
	Wilbarger	Phillips Pet. & King Oil Co. No. 1 W. T. Way	May	2,900	176 bbls. day
	Cooke	Sinclair Prairie Oil Co. No. 1 J. M. Best	June	4,900	2,000 bbls. day

NORTH TEXAS

Daily Average and Monthly Production in First Six Months of 1938

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Ttl. 6 mos. (bbls.)
ARCHER COUNTY:							
Daily average	11,530	11,098	10,838	10,802	10,307	10,360	
Month	357,421	310,734	335,982	324,064	319,525	310,800	1,958,526
BAYLOR COUNTY:							
Daily average	1,508	1,484	1,404	1,397	1,270	1,384	
Month	46,760	41,552	43,512	41,905	39,381	41,526	254,636
CLAY COUNTY:							
Daily average	937	1,074	1,301	1,464	1,426	1,387	
Month	29,040	30,076	40,325	43,925	44,192	41,621	229,179
COOKE COUNTY:							
Daily average	5,738	5,331	5,429	4,930	4,370	4,885	
Month	177,885	149,273	168,310	147,915	135,464	146,544	925,391
FOARD COUNTY:							
Daily average	686	615	650	703	628	689	
Month	21,267	17,227	20,165	21,086	19,473	20,670	119,888
JACK COUNTY (North):							
Daily average	140	172	180	181	189	174	
Month	4,325	4,827	5,582	5,427	5,865	5,228	31,254
MONTAGUE COUNTY:							
Daily average	5,677	5,451	5,598	5,180	4,736	5,114	
Month	175,973	152,626	173,527	155,412	146,806	153,416	957,762
WICHITA COUNTY:							
Burkburnett district—							
Daily average	5,150	4,718	4,929	5,380	4,919	4,906	
Month	159,656	137,704	152,792	161,396	152,494	147,182	911,224
K.M.A.-Iowa Park—							
Daily average	6,810	8,527	10,940	14,721	15,949	13,406	
Month	211,119	264,337	339,132	441,632	494,411	402,180	2,152,811
Electra—							
Daily average	8,512	7,919	8,310	8,117	7,816	8,009	
Month	263,876	221,732	257,610	243,515	242,288	240,281	1,469,302
Miscellaneous—							
Daily average	565	559	870	1,196	624	700	
Month	17,518	15,652	26,966	35,886	19,344	20,986	136,352
WILBARGER COUNTY:							
Daily average	9,328	9,002	9,164	9,409	8,901	7,753	
Month	289,180	252,053	284,079	282,276	275,916	232,582	1,616,086
YOUNG COUNTY (North):							
Daily average	6,175	6,015	6,077	6,001	5,697	6,611	
Month	191,439	168,415	188,395	180,039	176,605	198,333	1,103,226
Daily average	62,760	63,053	65,693	70,483	66,831	65,375	65,555
First six months 1938	1,945,461	1,766,208	2,036,377	2,081,460	2,071,764	1,961,367	11,865,637
First six months 1937	1,778,992	1,846,548	2,103,245	2,051,278	2,158,059	2,085,354	12,223,476
First six months 1936	1,922,589	1,731,764	1,910,158	1,913,520	1,970,360	1,897,470	11,345,861
First six months 1935	1,879,747	1,740,760	1,874,384	1,825,350	1,919,210	1,852,710	11,092,161
First six months 1934	1,740,898	1,644,440	1,867,223	1,837,590	1,887,187	1,815,210	10,792,548

APPROVED

By the U. S. Bureau of Mines

ACME *Full Vision* GAS MASKS

Acme FULL VISION Gas Masks Nos. 4 and 4-A, with Acme Type 1-OV (Organic Vapors) Canisters, now carry United States Bureau of Mines Approval Numbers 1418 and 1418A.

Full Vision is an original and exclusive Acme feature, enabling the wearer to see exactly the same as when not wearing a mask—a most important contribution to safety. Moreover, the Acme FULL VISION Face Piece is the lightest weight Government Approved Face Piece, and the complete Masks are the lightest which have yet received the Bureau of Mines Approval.

Other ***Acme Features*** include replaceable Safety Glass Lenses, scientifically designed Head Harness which eliminates all pressure points on the wearer's forehead, and Dead Air Check Valves to prevent exhaled breath from accumulating in Fresh Air Ducts.

Acme FULL VISION Masks are the utmost in Safety, Comfort and Value.

Write for Complete Information and Bulletins on Acme Full Vision Gas Masks or Full Vision Supplied-Air Respirators (Hose Masks).

ACME PROTECTION EQUIPMENT CO., INC.

MANUFACTURERS OF RESPIRATORY PROTECTION

3603 LIBERTY AVE. PITTSBURGH, PA.

SOUTHWEST TEXAS (Continued)

(Continued from Page 175)

(San Antonio District)

Daily Average and Monthly Production in First Six Months of 1938

	January (bbls.)	February (bbls.)	March (bbls.)	April (bbls.)	May (bbls.)	June (bbls.)	Ttl. 6 mos. (bbls.)
BRANYON:							
Daily average	1,949	2,032	2,062	1,852	1,718	1,675	
Month	60,419	56,896	63,922	55,560	53,258	50,250	340,305
BUCHANAN:							
Daily average	279	263	260	207	497	454	
Month	8,649	7,364	8,060	6,210	15,407	13,620	59,310
BURDETT:							
Daily average	27	66	213	175	62	57	
Month	837	1,848	6,603	5,250	1,922	1,710	18,170
CHAPMAN:							
Daily average	249	254	278	209	210	208	
Month	7,719	7,112	8,618	6,270	6,510	6,240	42,469
DALE:							
Daily average	182	164	215	165	217	345	
Month	5,642	4,592	6,665	4,950	6,727	10,350	38,926
DARST CREEK:							
Daily average	8,025	7,375	7,582	7,712	6,963	6,487	
Month	248,775	206,500	235,042	231,360	215,853	194,610	1,332,140
DOBROWOLSKI:							
Daily average	151	152	137	151	148	146	
Month	4,681	4,256	4,247	4,530	4,588	4,380	26,682
HILBIG:							
Daily average	382	343	356	356	327	291	
Month	11,842	9,604	11,036	10,680	10,137	8,730	62,029
LULING:							
Daily average	6,784	6,847	6,907	7,602	6,768	6,230	
Month	210,304	191,716	214,117	228,060	209,808	186,900	1,240,905
LYTTON SPRINGS:							
Daily average	319	327	313	290	287	282	
Month	9,889	9,156	9,703	8,700	8,897	8,460	54,805
MINERVA:							
Daily average	177	191	202	201	186	177	
Month	5,487	5,348	6,262	6,030	5,766	5,310	34,203
OGDEN:							
Daily average	149	128	122	114	110	103	
Month	4,619	3,584	3,782	3,420	3,410	3,090	21,905
PEARSALL:							
Daily average	522	132	574	600	586	530	
Month	16,182	3,696	17,794	18,000	18,166	15,900	89,738
SALT FLAT:							
Daily average	4,131	3,870	3,952	3,952	4,161	3,782	
Month	128,061	108,360	122,512	118,560	128,991	113,460	719,944
SOMERSET:							
Daily average	656	634	613	584	570	541	
Month	20,336	17,752	19,003	17,520	17,670	16,230	108,511
VON ORMY:							
Daily average	146	151	152	145	156	148	
Month	4,526	4,228	4,712	4,350	4,836	4,440	27,092
ZOBOROSKI:							
Daily average	125	103	141	148	146	133	
Month	3,875	2,884	4,371	4,440	4,526	3,990	24,086
MISCELLANEOUS FIELDS:							
Daily average	514	456	591	592	532	539	
Month	15,934	12,768	18,321	17,760	16,492	16,170	97,445
Daily average	24,768	23,488	24,670	25,055	23,644	22,128	23,971
First six months 1938	767,777	657,664	764,770	751,650	732,964	663,840	4,338,665
First six months 1937	711,946	634,900	714,395	695,940	846,300	796,170	4,399,651

SHALE OIL

(Continued from Page 81)

lation, cracking and distillation or hydrogenation-cracking. Comparative yields calculated per 100 gallons of tar would be:

	Distillation	Cracking and distillation	Hydrogenation tion-cracking
Motor spirit, including gas spirit, gal.	12	21	36 or 105
Diesel oil, gal.	24	11	67 nil
Fuel oil, gal.	27	5	nil nil
Paraffin wax, lbs.	58	nil	57 57
Pitch, lbs.	390	390	nil nil

The motor spirit from distillation would be classed as grade I; the "diesel oil" would be suitable only as a blend constituent. Distillation of the tar would therefore yield 5-7 gallons of motor spirit and 21-30 gallons of diesel oil per ton of cannel. Cracking would increase the yield of spirit by about 4 gallons and decrease the yield of oil by 15 gallons.

Reduction of the temperature of carbonization does not lead to higher yields of oil. Direct hydrogenation would give much higher yields, but cannel offers no appreciable advantage over bituminous coal from the hydrogenation process.

These results appear to justify the careful separation of cannel during mining, and its separate treatment in continuous-vertical gas retorts, the crude tar being treated at present by distillation in the absence of available hydrogenation plant.

Another paper entitled "Motor Fuels From Cracking Shale Oil," along this same line of discussion was presented by G. Egloff, J. C. Morrell and G. B. Zimmerman, all of Universal Oil Products Co., Chicago, which has been summarized as follows:

Among the important hydrocarbon resources, shale oil represents a large potential source of motor fuel. The modern cracking process was applied in pilot plant scale to the processing of a variety of shale oils and their fractions to increase the yield of motor fuel.

A French shale oil from the Autun region yielded 6 per cent gasoline on distillation. The remaining oil, on cracking, produced 49.3 volume per cent gasoline with 45.6 per cent residuum (fuel oil) and 69.1 volume per cent gasoline with 24 weight per cent coke. After treatment with sulfuric acid, the gasoline yield from the residuum operation was 46.6 per cent, having 62 octane number with .19 per cent sulfur. From the coking operation the treated gasoline yield was 65.2 per cent with similar properties.

Three Fushun, Manchurian, shale oil fractions, including the crude shale oil, fuel oil from coking distillation of the crude and topped shale oil, were processed to produce gasoline with residuum or coke and to produce gasoline and kerosene with residuum or coke. The gasolines were treated with sulfuric acid and the kerosenes with liquid sulfur dioxide to produce finished products. The yields were:

CRACKING TO PRODUCE GASOLINE

Charging stock / Type of operation—	Crude: Residuum	Crude: Coking	Fuel oil: Residuum	Fuel oil: Coking	Residuum: Residuum	Residuum: Coking
Gasoline (acid treated)	34.5	57.9	32.6	59.8	28.0	55.9
Sulfur, per cent	0.26	0.23	0.30	0.25	0.22	0.20
Octane No., M.M.	56	54	56	55	55	54
Residuum, per cent by vol.	56.0	....	58.4	....	64.9	....
Coke, lb./bbl. raw oil	....	84.0	....	78.0	....	92.0

CRACKING TO PRODUCE BOTH GASOLINE AND KEROSENE

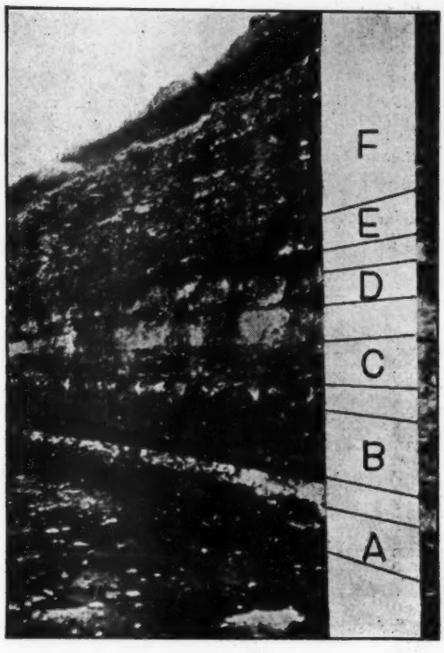
Charging stock / Type of operation—	Crude: Residuum	Crude: Coking	Fuel oil: Residuum	Fuel oil: Coking	Residuum: Residuum	Residuum: Coking
Gasoline (treated)	14.0	28.1	16.8	25.4	11.4	25.8
Kerosene (treated)	21.1	28.7	13.5	21.4	12.7	29.1
SO_2 extract	8.8	15.8	14.2	22.3	10.6	21.4
Residuum	59.7	0.0	48.2	0.0	61.0	0.0
Coke, lb./bbl. raw oil	...	71.4	..	55.8	...	58.8

A topped Newnes, Australia, shale oil, when cracked, produced 59.2 per cent gasoline with 85.6 pounds of coke per barrel. When treated to remove tar acids and bases, the gasoline yield was reduced to 58.7 per cent of 64.5 octane number product which, with the addition of inhibitor, was suitable for motor fuel.

The Kinnekull district, Sweden, produced a heavy shale oil from which 42.1 per cent gasoline of high octane number and a residuum was produced. The residuum was satisfactorily reduced to asphalt.

Spanish Shale Oil

A Spanish shale oil processed in both residuum and coking operations produced 41.4 per cent and 60.0 per cent gasoline, respectively, with 45.5 per cent residuum and 95.5 pounds of coke per barrel. A satisfactory gasoline with a yellow color was obtained by removing the tar acids and bases. In finishing the gasoline by acid treatment and the addition of inhibitor, the color was improved with a sacrifice in yield.



Shale oil beds in Kohtla-Jarve mine, Estonia

Of the workable layers, A, B and C contain approximately 50 per cent of ash calculated on the dry substance. Layer E, with 40 per cent ash, is the richest. Layer D, with 65 per cent ash is the poorest. The limestone beds deposited between the layers of combustible shale and the limestone in the combustible shale itself influence the ash content of the shale obtained.

It is concluded that the modern cracking process is adaptable to processing shale oil with results similar to those from petroleum. The yields of gasoline are, however, somewhat lower. The presence of tar acids and tar bases make corrosion protection and results in relatively high losses in treating the distillates. These offer the possibilities of valuable chemical by-products,

Crude Price Changes, First Six Months, 1938

OKLAHOMA AND KANSAS

Gravity—	Jan. 1 Schedule No. 1	Jan. 1 Schedule No. 2
Below 25		$.98
25-25.9		1.00
26-26.9		1.02
27-27.9		1.04
28-28.9		1.06
Below 29	$1.06	
29-29.9	1.08	1.08
30-30.9	1.10	1.10
31-31.9	1.12	1.12
32-32.9	1.14	1.14
33-33.9	1.16	1.16
34-34.9	1.18	1.18
35-35.9	1.20	1.20
36-36.9	1.22	1.22
37-37.9	1.24	1.24
38-38.9	1.26	1.26
39-39.9	1.28	1.28
40 and over	1.30	1.30

Schedule No. 1 posted by Barnsdall, Bell, Champlin, Continental, Cushing, Derby, Bay, Eason, El Dorado, Cities Service, Falcon, Globe, Gulf, Johnson, National, Phillips, White Eagle, Stanolind, Sunray, Texas, Sun, Vickers and Wilcox.

Schedule No. 2 posted by Anderson & Prichard, Carter, Cosco, Deep Rock, Magnolia, Mid-Continent, Pure, Rock Island, Shell, Sinclair, Skelly and Tide Water.

Effective ..... Kanotex posted.

ALTUS AND TIPTON, OKLAHOMA

	Jan. 1
Altus and Tipton	$1.20

Posted by Gulf Oil Co.

GULF COAST

Gravity:	Jan. 1 Schedule No. 1	Jan. 1 Schedule No. 2	Apr. 1 Schedule No. 1	Apr. 1 Schedule No. 2
Below 18	$.90	....	$.95	....
18-18.9	.92	....	.95	....
19-19.9	.94	....	.95	....
20-20.9	.96	$.95	.95	$.95
21-21.9	.98	.98	.98	.98
22-22.9	1.01	1.01	1.01	1.01
23-23.9	1.04	1.04	1.04	1.04
24-24.7	1.07	1.07	1.07	1.07
Below 25	..	..	..	..
25-25.9	1.10	1.10	1.10	1.10
26-26.9	1.13	1.13	1.13	1.13
27-27.9	1.15	1.15	1.15	1.15
28-28.9	1.17	1.17	1.17	1.17
Below 29	..	..	..	..
29-29.9	1.19	1.19	1.19	1.19
30-30.9	1.21	1.21	1.21	1.21
31-31.9	1.23	1.23	1.23	1.23
32-32.9	1.25	1.25	1.25	1.25
33-33.9	1.27	1.27	1.27	1.27
34-34.9	1.29	1.29	1.29	1.29
Below 35	..	..	..	..
35-35.9	....	1.31	....	1.31
36-36.9	....	1.33	....	1.33
37-37.9	....	1.35	....	1.35
38-38.9	....	1.37	....	1.37
39-39.9	....	1.39	....	1.39
40 and over	....	1.41	....	1.41

Schedule No. 1 posted by the Texas Co. (Gulf Refining Co. pays same prices up to and including 34-gravity but continues its 2-cent spread up to 40 and over at $1.41.)

Schedule No. 2 posted by Humble Oil & Refining Co., Sinclair Prairie Oil Marketing Co. and Sun Oil Co.

GULF COAST

	Jan. 1
Clay Creek, Tex.	$1.00
Garden Island, La.	1.37
Cleveland, Tex.	1.27
Hardin, Tex.	1.15
Lafitte, La.	1.24
Livingston, Tex.	1.27
Welsh, La.	.98
Tepetate, La.	1.24

O'Connor-McFadden, Tom O'Connor and Plymouth take same gravity prices as Refugio, Greta, etc. Duval, Jim Hogg, Webb and Zapata counties, Texas, and Heyser and Placedo fields take Mirando gravity prices. Jennings, La., 5 cents lower than Gulf Coast prices on each degree.

REFUGIO, GRETA, SAXET, AND TAFT, TEX.

Gravity—	Jan. 1
20-20.9	$1.01
21-21.9	1.03
22-22.9	1.05
23-23.9	1.07
24-24.9	1.09
25-25.9	1.11
26-26.9	1.13
27-27.9	1.15
28-28.9	1.17
29-29.9	1.19
30-30.9	1.21
31-31.9	1.23
32-32.9	1.25
33-33.9	1.27
34-34.9	1.29
35-35.9	1.31
36-36.9	1.33
37-37.9	1.35
38-38.9	1.37
39-39.9	1.39
40 and over	1.41

Posted by Humble Oil & Refining Co.

WEST TEXAS

	Jan. 1
Pecos County*	$.91
Pecos shallow†	.81

*Shell Petroleum Corp., Gulf Pipe Line Co. and Humble Oil & Refining Co.
†Shell Petroleum Corp.

ANAHUAC, DICKINSON, FLOUR BLUFF AND TURTLE BAY, TEXAS

Gravity—	Jan. 1
30-30.9	$1.16
31-31.9	1.18
32-32.9	1.20
33-33.9	1.22
34-34.9	1.24
35-35.9	1.26
36-36.9	1.28
37-37.9	1.30
38-38.9	1.32
39-39.9	1.34
40 and over	1.36

Posted by Humble Oil & Refining Co.

CALIFORNIA CRUDE OIL PRICE CHANGES IN 1938

Gravity—	Richfield Jan. 1	Santa Fe Springs Jan. 1	Montebello Jan. 1	Athens, Rosecrans Jan. 1	Mountain View Jan. 1	Elwood Terrace Jan. 1	Belridge‡ Jan. 1	El Segundo Jan. 1	Kettleman Hills Jan. 1
14-14.9	$.76	...	$.77	...	...	...	$.70	$.80	...
15-15.9	.76	...	.77	...	...	...	.70	.80	...
16-16.9	.76	...	.77	...	...	...	.70	.80	...
17-17.9	.76	...	.77	...	...	...	.70	.80	...
18-18.9	.76	...	.77	...	...	...	.70	.80	...
19-19.9	.76	...	.77	...	$.70	...	.74	.82	...
20-20.9	.78	...	.77	...	.70	...	.78	.85	...
21-21.9	.80	$.78	.77	...	.73	...	.82	.88	...
22-22.9	.84	.78	.79	...	.77	...	.86	.92	...
23-23.9	.88	.78	.82	$.84	.80	...	.90	.95	...
24-24.9	.91	.82	.85	.88	.84	...	.94	.99	...
25-25.9	.95	.86	.89	.93	.88	...	.98	1.03	...
26-26.9	.98	.90	.92	.98	.91	...	1.02	1.06	...
27-27.9	1.02	.95	.96	1.03	.95	F.O.B.	1.06	1.10	...
28-28.9	1.06	.99	.99	1.07	.99	ship	1.10	1.14	...
29-29.9	1.09	1.03	1.03	1.12	1.02	...	1.14	1.17	...
30-30.9	...	1.08	1.07	1.17	1.06	...	1.18	1.21	...
31-31.9	...	1.12	1.11	1.22	1.09	...	1.20	...	...
32-32.9	...	1.16	1.14	1.27	1.13	...	1.22	...	...
33-33.9	...	1.20	1.18	1.32	1.17	$1.28	1.24	...	$1.19
34-34.9	...	1.25	1.22	1.37	1.20	1.32	1.26	...	1.23
35-35.9	...	1.29	1.25	1.42	...	1.35	1.28	...	1.27
36-36.9	...	1.33	1.29	1.46	...	1.39	1.30	...	1.31
37-37.9	...	1.37	1.32	1.51	...	1.43	1.32	...	1.35
38-38.9	...	1.42	1.36	1.56	...	...	...	...	1.39
39-39.9	...	...	1.40	1.61	...	...	...	...	1.43
40-40.9	...	...	1.43	1.66	...	...	...	...	...

Gravity—	West Coyote Hills Jan. 1	Buena Vista Hills, Midway-Sunset, Lakeview area, Elk Hills Jan. 1	Lost Hills† Jan. 1	Alamitos Heights Jan. 1	Whittier, La Habra Jan. 1	Rincon* Jan. 1	Dominguez Jan. 1	Wheeler Ridge Jan. 1	Coalinga Jan. 1
14-14.9	$.78	$.70	$.70	$.74	$.76	...	...	...	$.70
15-15.9	.78	.70	.70	.74	.76	...	...	...	.70
16-16.9	.78	.70	.70	.74	.76	...	...	...	.70
17-17.9	.78	.70	.70	.74	.76	...	...	...	.70
18-18.9	.78	.70	.70	.74	.76	...	...	...	.70
19-19.9	.78	.74	.74	.74	.78	...	...	$.70	.71
20-20.9	.80	.78	.78	.74	.82	...	...	.70	.72
21-21.9	.84	.82	.82	.74	.85	...	...	.70	.74
22-22.9	.88	.87	.86	.74	.89	$.69	...	.72	.76
23-23.9	.92	.92	.90	.77	.93	.71	$.79	.76	.82
24-24.9	.96	.97	.94	.80	.96	.73	.81	.79	.86
25-25.9	1.00	1.01	.98	.82	...	.75	.83	.83	.90
26-26.9	1.03	1.06	1.02	.85	...	.77	.86	...	...
27-27.9	1.06	1.10	1.06	.88	...	.79	.88	...	...
28-28.9	1.10	1.15	1.10	.90	...	.81	.90	...	...
29-29.9	1.14	1.20	1.14	.93	...	.83	.93	...	...
30-30.9	1.17	1.25	1.18	.95	...	.85	.95	...	...
31-31.9	1.21	1.29	...	...	...	...	.97	...	...
32-32.9	1.25	1.34	...	...	...	...	1.00	...	...
33-33.9	1.28	1.38	...	...	...	...	...	...	...
34-34.9	1.32	...	...	...	...	...	...	...	...

Gravity—	Torrance Jan. 1	Seal Beach Jan. 1	Huntington Beach Jan. 1	Inglewood Jan. 1	Signal Hill Jan. 1	Santa Paula‡ Jan. 1	Orcutt‡ Jan. 1	Wilmington Jan. 1	Playa Del Rey Jan. 1
14-14.9	$.80	$.79	$.78	$.79	$.80	$.70	...	$.75	$.80
15-15.9	.80	.79	.78	.79	.80	.70	...	.75	.80
16-16.9	.80	.79	.78	.79	.80	.70	$.70	.75	.80
17-17.9	.80	.79	.78	.81	.80	.71	.70	.77	.80
18-18.9	.82	.79	.78	.84	.80	.73	.72	.79	.80
19-19.9	.85	.79	.82	.87	.82	.75	.74	.82	.84
20-20.9	.88	.79	.85	.90	.85	.77	.77	.85	.88
21-21.9	.91	.79	.89	.93	.88	.79	.80	.88	.93
22-22.9	.93	.82	.92	.96	.92	.82	.83	.92	.98
23-23.9	.96	.86	.96	.99	.95	.85	.86	.95	1.02
24-24.9	.99	.91	1.00	1.02	.99	.87	.88	.99	1.06
25-25.9	1.02	.95	1.03	1.05	1.03	.90	.91	1.03	1.11
26-26.9	1.05	1.00	1.07	1.09	1.06	.92	.93	1.06	1.16
27-27.9	...	1.05	1.11	1.12	1.10	.95	...	1.10	...
28-28.9	...	1.10	1.14	1.15	1.14	.97	...	1.14	...
29-29.9	...	1.15	1.18	1.18	1.17	.99	...	1.17	F.O.B.
30-30.9	...	1.19	1.22	1.21	1.21	1.01	...	1.21	our
31-31.9	...	...	...	1.24	...	...	...	...	pipe line
32-32.9	...	...	...	1.27	...	...	...	...	...
33-33.9	...	...	...	...	...	...	...	...	...

*Posted by General Petroleum Corp. of California. †Union Oil Co.'s Brea Canyon schedule stops at $1.14 for 28 degrees and over, and Lost Hills schedule stops at $1.32 for 37 degrees and over. ‡Posted by Union Oil Co. Effective December 22, 1937, Standard Oil Co. of California posted the following price schedule in the Greeley and Canal fields: 84 cents for 27 gravity to $1.64 for 48 gravity and above. Newhall, McKittrick, Kern River, Kern Front and Round Mountain unchanged at flat price of 70 cents. Kettleman Hills, Olinda, Brea Canyon, Ventura Avenue and Playa Del Rey also unchanged.

PENNSYLVANIA GRADE OIL

	Jan. 1	Mar. 7	June 13	June 16
Posted by Tide Water Associated Oil Co. and New York Transit Co.:				
Bradford, Pa.	$2.20	$2.05	$1.80	$1.80
Allegany, N. Y.	2.20	2.05	1.80	1.80
Posted by South Penn Oil Co.:				
Pennsylvania Grade oil in National Transit lines (Bradford field)	2.20	2.05	1.80	1.80
Pennsylvania Grade oil in Southwest Pennsylvania lines	1.88	1.71	1.46	1.46
Pennsylvania Grade oil in Eureka Pipe Line lines	1.82	1.65	1.40	1.40
Pennsylvania Grade oil in Buckeye Pipe Line lines	1.70	1.55	1.30	1.30
Corning Grade oil in Buckeye Pipe Line Co. lines	1.27	1.27	1.27	1.17
Posted by Pennzoil Co.:				
Pennsylvania Grade oil in National Transit lines:				
Group A	2.15	1.98	1.73	1.73
Includes Cochran, Franklin, Hamilton and Doolittle districts.				
Group B	2.14	1.97	1.72	1.72
Includes Titusville district.				
Group C	2.13	1.96	1.71	1.71
Includes Turkey and Tidioute districts.				
Group D	2.12	1.95	1.70	1.70
Includes Bear Creek and Porkey districts.				
Group E	2.10	1.93	1.68	1.68
Includes Eldeneau, Bull Creek, Rough Run, Carbon, Dipner, Bredin, McJunkin, Jameson, Kenerdell, Emlenton, Tiona, Lacy and Kinzau districts. Price depends on length of pipe line to plant at Oil City.				
Posted by Pure Oil Co.:				
Cabin Creek, W. Va.	1.82	1.65	1.40	1.40
Bradford Hollow, W. Va.	1.82	1.65	1.40	1.40
Kelly Creek, W. Va.	1.82	1.65	1.40	1.40

MIDDLE WESTERN STATES

OHIO OIL CO.

	Jan. 1	Jan. 5	Jan. 8	June 22
Lima†	$1.00	$1.00	$1.00	$1.00
Illinois	1.35	1.35	1.35	1.35
Princeton, Ind.	1.35	1.35	1.35	1.35
Midland, Mich.*	1.27	1.12	1.12	1.12
W. Branch, Mich.	.80	.80	.80	.80
Arenac, Mich.	.80	.80	.80	.80
Buckeye, Mich.	1.245	1.245	1.095	1.095
Muskegon, Mich.	1.00	1.00	1.00	1.00
Eastern Kentucky:				
Big Sandy River	1.42	1.42	1.42	1.42
Kentucky River	1.50	1.50	1.50	1.50
Western Kentucky	1.40	1.40	1.40	1.30

*Posted by Pure Oil Co. and Simrall Corp. and includes Greendale, Porter, Beaverton, Sherman, Chippewa, Allegan, and equal grades. West Branch, Mich., and Arenac, by Simrall Corp. Eastern Kentucky crude purchased by Ashland Refining Co., Ashland, Ky. Buckeye posted by Pure Oil Co. and Simrall Corp. †Effective May 25, Owensboro Pipe Line Co. posted a 10-cent reduction on Centralia, Ill., crude, making price $1.25 per barrel.

ROCKY MOUNTAIN STATES

	Jan. 1	May 1
Iles, Colo., light*	$1.18	$1.18
Iles, Colo., heavy*	1.12	1.12
Greybull, Wyo.*	1.30	1.30
Torchlight, Wyo.*	1.30	1.30
Grass Creek, Wyo., light*	1.30	1.30
Grass Creek, Wyo., heavy*	.62	.50
Hamilton dome, Wyo.*	.67	.45
Elk Basin, Wyo., light*	1.30	1.30
Frannie, Wyo., heavy*	.62	.62
Frannie, Wyo., light*	.70	.65
Hogback, N. Mex.*	1.33	1.33
Pondera, Mont.*	1.05	1.05
Salt Creek, Wyo., Tensleep sd.§	.70	.70
Big Muddy, Wyo.‡	1.23	1.23
Rock Creek, Wyo.†	1.205	1.205
Lea County, N. Mex.: (See West Texas gravity table.)		
Artesia, N. Mex.‡	.90	.90
Maljamar, N. Mex.‡	.90	.90
Canon City and Florence, Colo.	1.10	1.10
Lance Creek, Wyo.*	.97	.97
Lander, Wyo.¶	.545	.545
Garland, Wyo.	.50	.50
Sunburst, Mont.	.90	.90
Cat Creek, Mont.*†	1.30	1.30
Cut Bank, Mont.	.90	.90

*Stanolind Oil & Gas Co. and Ohio Oil Co. †Ohio Oil Co. ‡Continental Oil Co., Texas Co. (April 1, 1938). *†Posted by Northwest Refining Co. Other postings, effective Oct. 25, 1937, are on a gravity basis of $1.05 for below 25° and $1.30 for above 40°. §Salt Creek (except Tensleep sand), Dutton Creek and Midway, Wyo., take Stanolind's Oklahoma prices on a gravity basis. ¶Hudson Oil Co.

CONROE, RACCOON BEND, TOMBALL, SATSUMA, TEXAS

Gravity—	Jan. 1
Below 29	$1.20
29-29.9	1.22
30-30.9	1.24
31-31.9	1.26
32-32.9	1.28
33-33.9	1.30
34-34.9	1.32
35-35.9	1.34
36-36.9	1.36
37-37.9	1.38
38-38.9	1.40
39-39.9	1.42
40 and over	1.44

Posted by Humble Oil & Refining Co. and Sun Oil Co. Tide Water Oil Co.'s schedule starts at 35 degrees, $1.34 with 2-cent spread up to 40 and over at $1.44. Raccoon Bend prices are for deep sand oil.

MIRANDO DISTRICT, TEXAS

Gravity—	Jan. 1
20-20.9	$.96
21-21.9	.98
22-22.9	1.00
23-23.9	1.02
24-24.9	1.04
25-25.9	1.06
26-26.9	1.08
27-27.9	1.10
28-28.9	1.12
29-29.9	1.14
30-30.9	1.16
31-31.9	1.18
32-32.9	1.20
33-33.9	1.22
34-34.9	1.24
35-35.9	1.26
36-36.9	1.28
37-37.9	1.30
38-38.9	1.32
39-39.9	1.34
40 and over	1.36

"Mirando crude" includes crudes purchased in Duval, Jim Hogg, Webb and Zapata counties, and in the Heyser and Placedo fields.

WEST TEXAS, EXCEPT PECOS COUNTY, AND LEA COUNTY, NEW MEXICO

Gravity—	Jan. 1
25-25.9	$.78
26-26.9	.80
27-27.9	.82
28-28.9	.84
29-29.9	.86
30-30.9	.88
31-31.9	.90
32-32.9	.92
33-33.9	.94
34-34.9	.96
35-35.9	.98
36-36.9	1.00
37-37.9	1.02
38-38.9	1.04
39-39.9	1.06
40 and over	1.08

Posted by all purchasers.

CASS COUNTY, TEXAS

	Jan. 1
Cass County	$1.25

Posted by Texas Co.

CAYUGA, TEXAS

Gravity—	Jan. 1
Below 25	$.88
25-25.9	.90
26-26.9	.92
27-27.9	.94
28-28.9	.96
29-29.9	.98
30-30.9	1.00
31-31.9	1.02
32-32.9	1.04
33-33.9	1.06
34-34.9	1.08

Posted by Tide Water Oil Co.

CENTRAL AND NORTH TEXAS

Gravity—	Jan. 1
Below 29	$.96
29.29.9	.98
30-30.9	1.00
31-31.9	1.02
32-32.9	1.04
33-33.9	1.06
34-34.9	1.08
35-35.9	1.10
36-36.9	1.12
37-37.9	1.14
38-38.9	1.16
39-39.9	1.18
40 and over	1.20

Posted by all purchasers.

SOUTHWEST TEXAS

	Jan. 1
Pettus	$1.37
Salt Flat	1.09
Darst Creek	1.09
Luling	1.00
Lytton Springs	1.12
Hilbig	1.09
Clark	1.09
Carroll	1.09
Zoboroski	1.09

Posted by Humble Oil & Refining Co.

GOVERNMENT WELLS, TEXAS

Gravity—	Jan. 1
Below 18	...
18-18.9	...
19-19.9	...
20-20.9	$.90
21-21.9	.93
22-22.9	.96
23-23.9	.99
24-24.9	1.02

Posted by Sun Oil Co.

VAN, TEXAS

	Jan. 1
Van, Texas	$1.10

Posted by Humble Oil & Refining Co. and Pure Oil Co.

TALCO

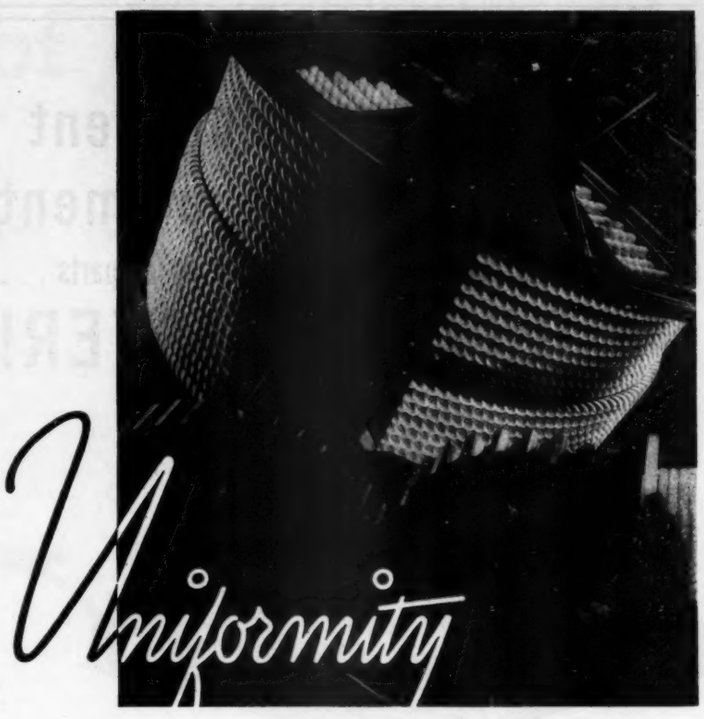
	Jan. 1
Talco field	$.73

Posted by Humble Oil & Refining Co.

EAST TEXAS

	Jan. 1
East Texas	$1.35

All companies.



Uniformity

is One Secret of Better

OIL FIELD MANILA CORDAGE

TODAY—tomorrow—next year . . . every length of Plymouth Oil Field Manila Cordage will exactly duplicate every other length of the same type and size, no matter where or when you buy it! The Plymouth standard of manufacture permits no variation either in quality of materials, special lubrication method, or uniformity of rope construction. Maintenance of this uniformity rests on a partnership of mechanical accuracy and experienced workmanship.

The machine, one rope reel of which is shown in the picture, is closing three identical ropes (or "thirds") into a cable. Strictest uniformity at every step—in making yarn, strand, rope and cable—is one reason for the dependability of Plymouth Oil Field Manila Cordage.

Ropemakers who understand the needs of oil producers, employing machines capable of minutest accuracy, give Plymouth Rope the uniform controlled quality which distinguishes these famous products—

PLYMOUTH MANILA

Drilling Cables • Crackers
Bull Ropes • Cat Head Lines
Torpedo Line • Spinning Lines

PLYMOUTH CORDAGE COMPANY

NORTH PLYMOUTH, MASSACHUSETTS

Oil Well Supply Co., Distributors—Stores in All Fields

PLYMOUTH

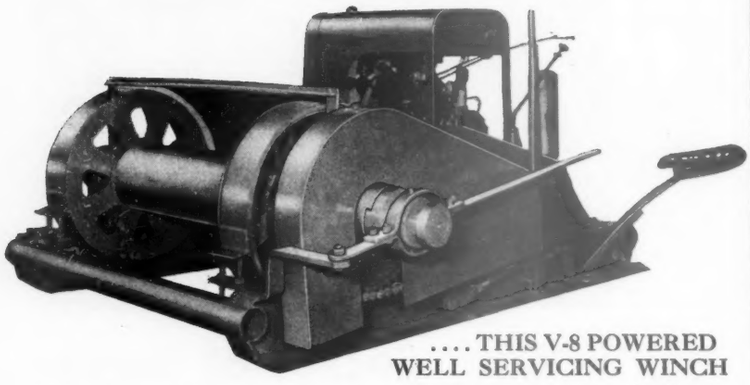
The Rope you can Trust

If you want

Servicing Equipment or Drilling Equipment

designed to be practical, with a minimum of parts . . .

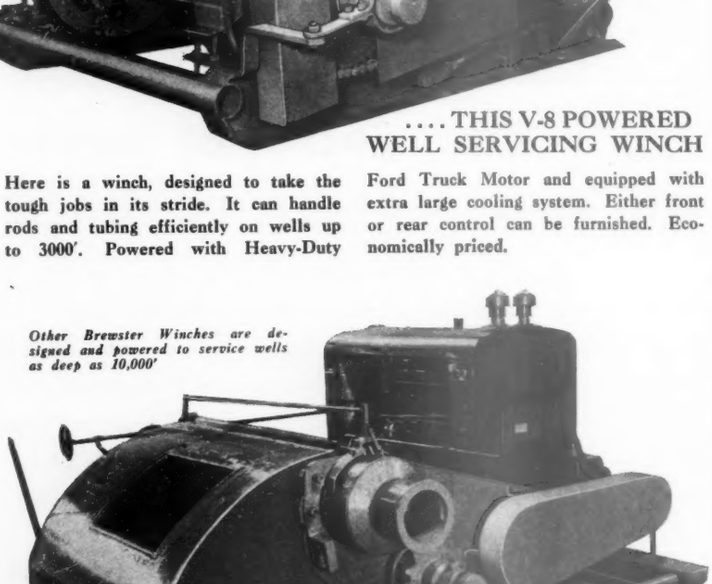
BUY BREWSTER!



. . . . THIS V-8 POWERED WELL SERVICING WINCH

Here is a winch, designed to take the tough jobs in its stride. It can handle rods and tubing efficiently on wells up to 3000'. Powered with Heavy-Duty Ford Truck Motor and equipped with extra large cooling system. Either front or rear control can be furnished. Economically priced.

Other Brewster Winches are designed and powered to service wells as deep as 10,000'



. . FOR DRILLING TO 4000' WE OFFER THIS PORTABLE MOTOR POWERED UNIT

Model-D pictured here is a truly streamlined modern drilling machine. It is exceptionally compact with weight reduced to a minimum. All working parts are enclosed, and all controls are conveniently located. It has 10 forward speeds and 2 reverse. All drive and line shafts are special alloy chrome nickel steel and turned to over-size dimensions. Full wrap brakes, air-cooled, self-energizing and fully equalized. The automatic cathead shown is optional. Model-D is furnished with either of two power plants, for 3000' and 4000' respectively. Both are available with detachable sand reels. Why not write us for details and prices—NOW?

Model 170 Brewster Complete Unitized Heavy Duty Motor Powered Draw Works is designed and amply powered for 5000' and 6000' drilling.

THE BREWSTER COMPANY

PHONE 2-3181 SHREVEPORT, LA.

Longview Lake Charles New Iberia Houma Rodessa

Export Office: Acme Supply Company, 136 Liberty St., New York City

MARION COUNTY, TEXAS

Gravity—	Jan. 1
Below 25	$.90
25-25.9	.92
26-26.9	.94
27-27.9	.96
28-28.9	.98
29-29.9	1.00
30-30.9	1.02
31-31.9	1.04
32-32.9	1.06
33-33.9	1.08
34-34.9	1.10
35-35.9	1.12
36-36.9	1.14
37-37.9	1.16
38-38.9	1.18
39-39.9	1.20
40 and over	1.22

Posted by Magnolia Petroleum Co.

CAMP HILL, TEXAS

	Jan. 1
Camp Hill	$1.27

GRAY COUNTY, TEXAS

Gravity—	Jan. 1
Below 35	$.96
35-35.9	.98
36-36.9	1.00
37-37.9	1.02
38-38.9	1.04
39-39.9	1.06
40 and over	1.08

Posted by all purchasers.

EAST CENTRAL TEXAS (Mexia District)

Gravity—	Jan. 1
Below 29	$1.03
29-29.9	1.05
30-30.9	1.07
31-31.9	1.09
32-32.9	1.11
33-33.9	1.13
34-34.9	1.15
35-35.9	1.17
36-36.9	1.19
37-37.9	1.21
38-38.9	1.23
39-39.9	1.25
40 and over	1.27

Posted by Humble Oil & Refining Co. and Sinclair Crude Oil Purchasing Co.

CARSON AND HUTCHINSON COUNTIES, TEXAS

Gravity—	Jan. 1
Below 35	$.91
35-35.9	.93
36-36.9	.95
37-37.9	.97
38-38.9	.99
39-39.9	1.01
40 and over	1.03

Posted by all purchasers.

NORTH LOUISIANA AND ARKANSAS

Gravity—	Jan. 1
Below 25	$.90
25-25.9	.92
26-26.9	.94
27-27.9	.96
28-28.9	.98
29-29.9	1.00
30-30.9	1.02
31-31.9	1.04
32-32.9	1.06
33-33.9	1.08
34-34.9	1.10
35-35.9	1.12
36-36.9	1.14
37-37.9	1.16
38-38.9	1.18
39-39.9	1.20
40 and over	1.22

Posted by all purchasers.

NORTH LOUISIANA AND ARKANSAS

Smackover, Ark.:	Jan. 1
All grades	$.90
Tullos and Urania	1.02
El Dorado East field	.90
Union County, Arkansas	.90
Ouachita County, Arkansas	.90
Lisbon, Louisiana*	.98

*Posted by Caddo Crude Oil Purchasing Co.

ROANOKE AND NORTH CROWLEY, LA.

Gravity—	Jan. 1
Below 21	$.90
21-21.9	.93
22-22.9	.96
23-23.9	.99
24-24.9	1.02
25-25.9	1.05
26-26.9	1.08
27-27.9	1.10
28-28.9	1.12
29-29.9	1.14
30-30.9	1.16
31-31.9	1.18
32-32.9	1.20
33-33.9	1.22
34-34.9	1.24
35-35.9	1.26
36-36.9	1.28
37-37.9	1.30
38-38.9	1.32
39-39.9	1.34
40 and over	1.36

WHITE CASTLE, LOUISIANA

Gravity—	Jan. 1
Below 18	
18-18.9	
19-19.9	$.94
20-20.9	.96
21-21.9	.98
22-22.9	1.01
23-23.9	1.04
24-24.9	1.07
25-25.9	1.10
26-26.9	1.13
27-27.9	1.15
28-28.9	1.17
29-29.9	1.19
30-30.9	1.21
31-31.9	1.23
32-32.9	1.25
33-33.9	1.27
34-34.9	1.29

Posted by Shell Petroleum Corp.

IOWA DISTRICT, LA.

Gravity—	Jan. 1
Below 18	$.90
18-18.9	.92
19-19.9	.94
20-20.9	.96
21-21.9	.98
22-22.9	1.01
23-23.9	1.04
24-24.9	1.07
25-25.9	1.10
26-26.9	1.13
27-27.9	1.15
28-28.9	1.17
29-29.9	1.19
30-30.9	1.21
31-31.9	1.23
32-32.9	1.25
33-33.9	1.27
34 and over	1.29

Posted by Shell Petroleum Corp.

EVANGELINE, LA.

Gravity—	Jan. 1
Below 20	$.92
20-20.9	.94
21-21.9	.96
22-22.9	.98
23-23.9	1.00
24-24.9	1.02
25-25.9	1.04
26-26.9	1.06
27-27.9	1.08
28-28.9	1.10
29-29.9	1.12
30-30.9	1.14
31-31.9	1.16
32-32.9	1.18
33-33.9	1.20
34-34.9	1.22
35-35.9	1.24
36-36.9	1.26
37-37.9	1.28
38-38.9	1.30
39-39.9	1.32
40 and over	1.34

Posted by Stanolind Oil & Gas Co.

CHOCTAW AND DARROW, LA.

Gravity—	Jan. 1
Below 21	$.90
21-21.9	.93
22-22.9	.96
23-23.9	.99
24-24.9	1.02
25-25.9	1.05
26-26.9	1.08
27-27.9	1.10
28-28.9	1.12
29-29.9	1.14
30-30.9	1.16
31-31.9	1.18
32-32.9	1.20
33-33.9	1.22
34-34.9	1.24
35-35.9	1.26
36-36.9	1.28
37-37.9	1.30
38-38.9	1.32
39-39.9	1.34
40 and over	1.36

Posted by Standard Oil Co. of Louisiana.

RODESSA, LOUISIANA AND TEXAS AND PANOLA COUNTY, TEXAS

Gravity—	Jan. 1
Below 25	$.93
25-25.9	.95
26-26.9	.97
27-27.9	.99
28-28.9	1.01
29-29.9	1.03
30-30.9	1.05
31-31.9	1.07
32-32.9	1.09
33-33.9	1.11
34-34.9	1.13
35-35.9	1.15
36-36.9	1.17
37-37.9	1.19
38-38.9	1.21
39-39.9	1.23
40 and over	1.25

Posted by all purchasers.

CANADIAN FIELDS

	Jan. 1	Jan. 5
Ontario:		
Petrolia	$2.10	$2.10
Oil Springs	2.17	2.17
Turner Valley, Alberta Province:		
Clear naphtha and discolored naphtha, 65 gravity and higher	2.36	2.14
Discolored naphtha and crude oil, 40-40.9 gravity	1.36	1.14
Increasing 2 cents for each degree of gravity with top price for 64-64.9 gravity	1.84	1.62

These prices delivered field tankage. Posted by Imperial Oil Co., Ltd.

Complete Text of Order Made by Judge Stone at Madison

The complete text of the order made by Judge Patrick T. Stone in the oil cases at Madison follows:

In the District Court of the United States of America for the Western District of Wisconsin. United States of America, plaintiff, v. Standard Oil Co. (Indiana) et al, defendants. No. 11365, Criminal.

Order on Motions After Verdict

Realizing the importance to the government and the defendants of a correct decision of the questions raised on the motions after verdict, and being conscious of the responsibility necessarily cast upon the court, I have made a careful and thoughtful restudy of the evidence as it applies to each defendant, separately and jointly. I have considered in detail the contentions of all the defendants as advanced in the motions after verdict, and have studied the many able briefs submitted on behalf of the government and the defendants. This record runs to more than 12,000 pages, in addition to over 1,000 exhibits.

The convincing force of much of the testimony relates in widely varying degrees to different defendants. It shows that the defendants were in varying situations in relations to the acts complained of by the government.

The trial lasted nearly four months, during all of which time the jury was kept sequestered and in the custody of the marshal. At the close of the trial there were presented motions in behalf of each defendant, requiring, for intelligent disposal, a complete knowledge of this monumental record as it applied to each defendant. I felt, then, that to have kept the jurors sequestered while each of these motions received full and careful consideration, would have been unjust and unfair to them.

The charge against the defendants lay in a field of economic controversy. Violations of the antitrust laws are different from crimes which are mala in se. The Department of Justice has, in each case where it believes a violation has occurred, the choice of a civil or criminal proceeding. It recognizes that the rule of reason, long considered essential in administering the Sherman Antitrust Act, makes sharply defined standards impossible.

In view of these circumstances, I concluded to let the case go to the jury as to all defendants, and after verdict to exercise, if necessary, the discretion of the court to prevent any miscarriage of justice.

The Indictment

The indictment charged a conspiracy involving many persons, not all indicted. The acts proved were often known to but a few of the defendants. Many of the acts were innocent enough upon their face, so that a defendant knowing only what appeared on the surface, might easily have drawn no inference of violation of law from the mere knowledge of the facts shown. The whole activity of a large part of a great industry in a large section of the country was involved. Legal purchases of gasoline in the ordinary course of dealing and running into the millions of dollars were being made, along with the purchases in a much smaller volume that the government has charged the defendants with having illegally made in the furtherance of the conspiracy. Letters, telegrams, telephone conversations and intercompany memoranda were shown having strong probative force as to some defendants, yet the contents thereof were wholly unknown to others. Large corporations with national distribution of gasoline were committed to a course of policy by agents or officials in charge of one department, where it is not at all clear that the responsible executive in charge of the entire company ever had any knowledge that a small portion of purchases here complained of had been made as a result of this conspiracy. Circumstantial evidence was adduced which applied with great force as to some defendants, yet had no probative force as to others.

As to a defendant shown by direct and positive evidence to have been a party to the conspiracy, or where as to a defendant the circumstantial evidence, properly applied, meets the required degree of proof, it is of course proper to view the record on a competitive whole. To apply that rule in cases where there was otherwise no proof or, at most, very slight proof, would be a complete reversal of the American idea of justice. All of the evidence must also be viewed in the light of special circumstances claimed to apply in individual cases.

That the jury was in a position to make the complete and critical study of the proof as it applied to each defendant separately is at least doubtful. It has taken the court a considerable time to do it with the aid of the record and briefs. The jury, acting in an effort to do justice, did get the larger view of the case, and is to be commended for its handling of a most difficult problem.

While I am satisfied that as to some of the defendants, as hereinafter pointed out, the verdict must stand, I am equally satisfied that as to the defendants Dan Moran, Henry M. Dawes, Edward G. Seubert, Allan Jackson, Bryan S. Reid, Frank Phillips, W. G. Skelly, Jacob France, Charles L. Jones, A. V. Bourque and the Globe Oil & Refining Co. (Kansas) there is no substantial evidence in the record fairly tending to sustain the verdicts of the jury, and as to these defendants the verdicts will be set aside and the indictment dismissed.

It is so ordered and adjudged.

I am also satisfied that in the light of the proof as a whole, but applied individually in the light of special circumstances shown as to them, which it would be fruitless to review here but which appear in the various motions and briefs, there is good reason to believe that certain defendants have not had an adequate consideration of their defense, in view of the fact that as to some of them direct evidence of participation was lacking or slight, and the circumstantial evidence viewed as a whole may well have obscured other facts and circumstances shown, in some cases, to be highly suggestive of innocence, and in all cases entitled to be considered and weighed. Once the jury arrived at the conclusion that a conspiracy to fix prices had been in operation, defendants as to whom only circumstantial evidence had been offered were naturally at a serious disadvantage in being charged and tried along with large corporations and other individuals definitely shown to have engaged in the conspiracy. Men who were employed by large corporations may well have had harmful inferences drawn from the fact that their employers, the corporations, participated in the conspiracy.

New Trial Granted

For these reasons and for many particular reasons set out in the motions and briefs, the verdicts will be set aside and a new trial granted to these defendants, and it is, therefore,

Ordered and adjudged that the verdict as to the defendants, Edward J. Bullock, A. G. Maguire, Harry D. Frueauff, H. E. Brandli, O. J. Tuttle, Harry J. Kennedy, C. B. Watson, J. W. Carnes, Edward L. Shea, Noel Robinson, J. W. Warner, T. B. Reeser, I. A. O'Shaughnessy, A. M. Hughes, Alexander Fraser, Cities Service Co., Barnsdall Refining Corp. and Standard Oil Co. (Indiana), be set aside and said defendants are hereby granted a new trial.

Coming now to the remaining defendants tried and not heretofore disposed of, the indictment charges in general substance that the defendant major oil companies, acting through the defendant officers and others not indicted, formulated and carried into effect an unlawful conspiracy to fix prices of gasoline during a period from about March 1, 1935, to about August 1, 1936. The indictment sets out precisely the means by which the conspiracy was carried into effect, namely, two substantially simultaneous buying program or pools, one in the so-called Mid-Continent field and the other in the so-called East Texas field. The charge is that in each instance, for the purpose of artificially raising and fixing the price of gasoline at artificially high and noncompetitive levels in the so-called spot tankcar market and in the wholesale and retail market in the Standard of Indiana territory, the major oil companies conspired to, and did, by concerted action and allotment, buy gasoline in large quantities from time to time, in the Mid-Continent area in that spot market and in the East Texas field through the East Texas Refiners Association in that spot market, which gasoline was not required to meet the needs of the respective major companies at the time, and that this was done for the sole purpose of bringing about an arbitrary and controlled rise in prices of gasoline.

Buying Program

The indictment further charges as a means of the execution thereof that the defendants conspired and designed through such buying to cause the higher and arbitrary and above market prices at which they were buying to be reported to and printed in the market quotations of the Chicago Journal of Commerce, and in Platt's Oilgram, as though they were bona fide sales of gasoline by independent refiners in those two fields to their independent jobbers and consumer trade, concealing from the rest of the industry and the public the fact that such sales were being made of distress gasoline to major companies who were buying solely for the purpose of bringing about a rise in price. The indictment charges that the conspiracy was carried out by concerted action of the defendants, and that as result, during the period involved, the defendants did bring about an arbitrary and artificial price in the said spot market, and that these prices were in fact published as spot market prices, and that as a result the defendant major oil companies received, as they had planned in formulating the conspiracy, arbitrary and unfair prices and profits from the sale of their own products which constituted a very high percentage of the total distribution to jobbers and consumers in the so-called Standard of Indiana territory. It further charges that the conspiracy as thus formulated and executed enabled these major companies, through the concerted purchase of a very small percentage of the total available gasoline for distribution in the Standard of Indiana territory, to raise the price to controlled levels and thereby unreasonably and unlawfully to profit on the sale of their own products.

The defendants contend that at and immediately prior to the commencement of the concerted program in the Mid-Continent field, the industry was suffering from serious abuses and bad trade practices which it was not only lawful for the defendants to correct by concerted action, but that such correction was imperative if conditions of free and healthy competition in the industry were to be preserved at all; that the spot tankcar price from November 1934 and through February of 1935, and immediately prior to the commencement of the buying program in the Mid-Continent field, was ruinously low; that had not prompt and immediate steps been taken to alleviate this condition, the independent refiners would have been bankrupt very shortly, and the industry deprived of any independent competition in that field; that even the majors were sustaining tremendous losses as a result of the ruinous price. That another cause of the disastrous situation of the industry at the time was the production of unlawful crude and of gasoline unlawfully manufactured therefrom, called in the industry "hot" oil, and that this had been a heavily contributing factor in bringing about, over a long period of time, an oversupply of crude and thus of gasoline.

That the independent refiners were almost without exception poorly capitalized, had not the means with which to supply or acquire storage facilities which would enable them to hold their manufactured product more than a very brief period of time, and that they were thus not in a position to hold their product awaiting seasonable demand or better markets, but on the contrary were under the necessity of making a sub-

stantially immediate disposition of all of their products over and above their current market sales to regular customers, at whatever price they could obtain, and this was usually well below the market price. That the independent refiner could not cut down their supply of crude, being obligated to take the entire output of their various sources of crude or lose those sources entirely. That buyers among independent jobbers, distributors and the major companies, were taking full advantage of this situation, and that this excess gasoline over and above what the independents could sell to their regular trade, and which was called in the trade "distress" gasoline, heavily overhung the market, depressed it well below the cost of production, and constituted a serious unfair trade practice and condition which the defendants were fully justified in seeking to remove by concerted action. That concerted action in that behalf was not only lawful, but in the public interest, and calculated to restore and preserve a healthy competition among independent refiners with the major companies, and to bring about for the industry only a fair, reasonable and normal profit upon its manufacturing processes; and that it was entirely legitimate for the major companies to seek the incidental benefit to themselves therefrom resulting. That this situation as to distress gasoline had been the subject and object of government investigation and efforts for its removal over a considerable period of time prior to the commencement of the buying program in the Mid-Continent field; that their objective in this program was to bring about only such a rise in the spot tankcar price as would bring the price of gasoline onto a parity basis with its raw materials, crude, and thus enable the industry to recover the cost of manufacture and a normal healthy profit; that the government itself had fixed a fair parity ratio between gasoline and crude at 18⅓ to 1, and that the price of crude was "pegged" by the government at $1 per barrel, and that the price of gasoline in the spot tankcar market in the period in question never at any time exceeded the parity basis. That the attainment of a parity basis between gasoline and crude had been and was a governmental objective over some considerable period of time prior to the inception of the buying program in the Mid-Continent field.

N.R.A. Code

That the concerted action in the Mid-Continent field was taken under the authority of the code for the petroleum industry set up under the National Industrial Recovery Act, and that when the latter had ceased to be in effect, the program was continued with the knowledge of responsible officers of the government in authority in connection with the petroleum industry. That while there undoubtedly was a buying program in the Mid-Continent field, this did not go at any time beyond a purely voluntary program under which no major company made any commitment to buy at all, no commitment to buy any particular quantity, and no commitment to pay any particular price. That the program consisted of assembling accurate and dependable information as to the location of and amounts of distress gasoline in the hands of independent refiners from time to time, and imparting this knowledge to the major companies who were committed to the general program of removing this gasoline at fair but not higher than market prices. That at all times each of the major companies bought in the light of this information, considering a price which had been recommended but was not at all binding, and that each company, in making purchases, dealt directly with the independent refiner, and made its own bargain and price, and was free at any time to buy or not to buy, as it saw fit, and that there was never any commitment or promise involved in the program. That the arrangement by which each major company operating in the Mid-Continent field is claimed to have assumed responsibility for absorbing or buying the surplus or distress gasoline of one or more independent refiners, called in the program "dancing partner," was one for convenience only, and was a reasonable and fair method of providing for the orderly marketing of distress gasoline. That had not this been done, the buying would have been haphazard, with some independent refiners not disposing of their surplus and others having greater demands than they could meet.

That in the Mid-Continent field another evil practice which they sought to remove was that certain independents refiners were better known than others, and could dispose of their products more readily, with the result that they were running more than their fair share of gasoline, while certain other independents, less known, had difficulty in disposing of a fair amount of gasoline, and that the bringing together of a major with its "dancing partner" or partners, was calculated to even up and equalize that situation, and was one which was calculated for the good of the industry, but was not for the benefit of the major companies in particular. That the published prices of sales in the trade journals were actual sales of independent refiners to their independent jobber or consumer customers arrived at in a free and competitive market, and that on no occasion was the sale of gasoline to a major company published as the spot tankcar market price. That the major companies did not, in fact, buy gasoline in excess of their legitimate needs and requirements. That taking into consideration their current demand, impending seasonal demands, expected improvement in general economic conditions, and the impending enforcement of the Connally Act, their buying was no more than reasonable, prudent buying for such needs and reasonable inventories. That there was never any buying program or concerted arrangement of any kind in the East Texas field so far as the major oil companies were concerned. That the independent refiners themselves organized a central selling agency to market their distress gasoline. That the independent refiners in East Texas had brought about much of their difficulty and distress by reason of their purchase of unlawfully produced crude, and the manufacturing of the same into unlawful gasoline, or, in other words, they were dealing in "hot oil," and further that this group of refiners had not been found dependable by the industry in respect to the quality or uniformity of their product; that the association was formed by these independent refiners for the purpose of bringing about a condition in which these refiners could make it known to the industry that they had desisted from these bad practices and had become a dependable group with whom majors could safely deal, and that it was an effort to overcome resistance on the part of the majors against buying from this group of refiners which caused the association to be formed. That the entire East Texas program consisted of an effort by the East Texas association to induce major companies to buy distress gasoline of the members of the association through the association, and that the

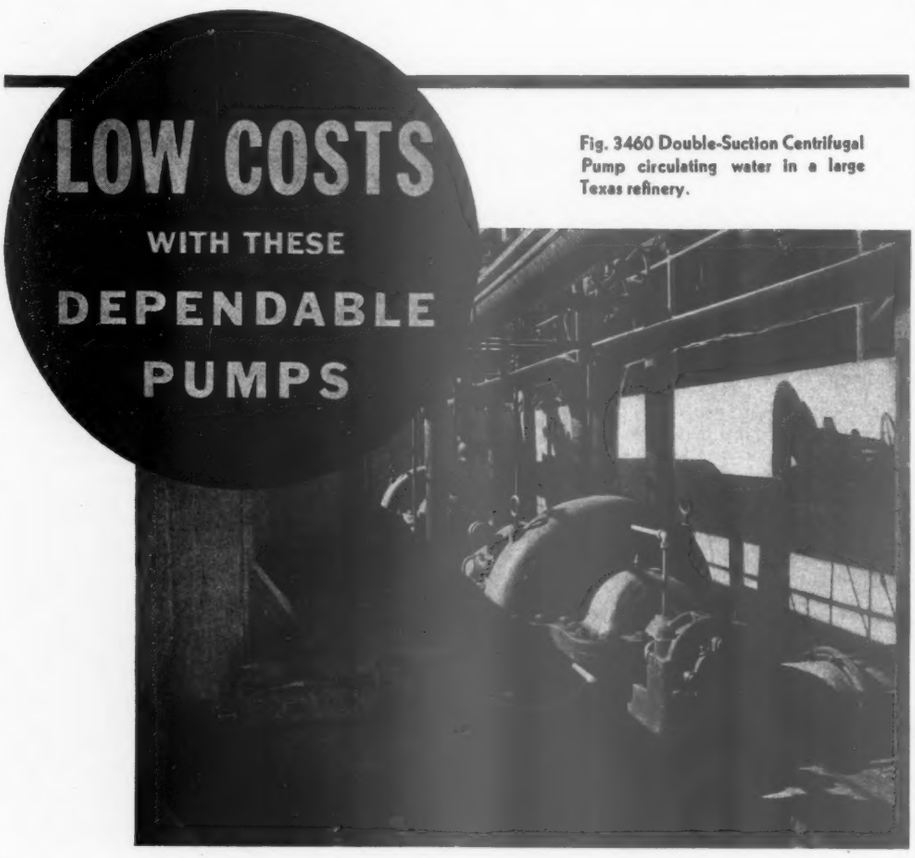


Fig. 3460 Double-Suction Centrifugal Pump circulating water in a large Texas refinery.

When low pumping costs are a primary consideration, a Goulds Fig. 3460 double-suction centrifugal pump may well be chosen.

Goulds Centrifugal Pumps, designed for efficient and low cost performance, are giving economical service under unusual operating conditions in many branches of the petroleum industry.

When, for instance, water is to be circulated in a refinery, you will find Goulds Fig. 3460 Pumps will best answer your requirements. Pumps like those illustrated have been used for years in water circulating service and have proved themselves to be highly satisfactory.

Goulds Pumps are made in many types and sizes, to meet every requirement for pumping service in refineries. Write for further information.

GOULDS PUMPS Inc.
SENECA FALLS N. Y.
ATLANTA BOSTON CHICAGO HOUSTON NEW YORK PHILADELPHIA PITTSBURGH TULSA Representatives in all Principal Cities

8332

"FIELD TESTED" Lufkin

CHECK THESE *Prerequisites* BEFORE PURCHASING

1. Herringbone gears . . . quiet, efficient, with strength in abundance and designed for maximum compactness.
2. Large, oversize bearings, adequate to withstand the severe shocks of variable pumping loads.
3. Positive and efficient lubrication to all working parts.
4. Center-line beam motion to insure greatest possible efficiency and uniform polish rod motion.
5. Counterbalance crank of Rotary type — simple, rugged and easily adjustable to correct position.
6. Field service to supervise and check installations — to insure complete operating satisfaction.

"FIELD TESTED" means more than the building of one or two units for trial purposes!

"FIELD TESTED", in the Lufkin sense of the word, means close observation throughout the years . . . of thousands of Lufkin Units and the correction of the slightest imperfection.

LUFKIN ENGINEERS and Lufkin Service-men work very closely with the men in the industry, striving constantly to foresee improvements far in advance of actual requirements.

LUFKIN PUMPING UNITS

LUFKIN UNITS are manufactured in Lufkin, Texas, by the Lufkin Foundry & Machine Company. Branches in principal oil centers

majors never entered into any concert or agreement of any kind or undertaking with reference thereto, and that the sales of gasoline made through the association consist of two groups:

(a) Purchases by majors who had always bought in East Texas but who had no part in any concerted action or program;

(b) Purchases by majors who may or may not have been purchasing in East Texas regularly, but independent purchases made as a result of the direct solicitation by the East Texas Marketing Association;

and that in each case every sale was an independent, isolated transaction involving no concert or agreement with major companies. That such buying as was done by major companies in East Texas was in the light of actual requirements, and that the evidence as to amounts of purchases by various companies and time of purchase discloses that there could have been no allocation or arrangement between the majors. That through the period only a few purchases of a very small percentage of the total were made at above the low price of the spot tankcar market; that a much higher percentage was purchased at a low of that market; and that a majority of the purchases in amount was at from one-fourth to one-half cent under the low of the spot tankcar market; that these activities were not calculated or intended to and did not bring about an unreasonable price; that the circumstance that the price leveled off from June, 1935, through December, 1935, was a natural and frequently recurring condition in the industry under healthy, normal competitive conditions; that the rise of one-half cent in January, 1936, resulted naturally from a corresponding rise in price of crude at that time, and was not the result of concerted action on the part of the defendants.

That the program in the Mid-Continent field was conducted openly, publicly and with full knowledge of all the trade, independent and major companies alike, and with the knowledge of responsible government officials. That at no time was the open and free competition in the spot tankcar market destroyed or impaired; that the spot market was at all times a free, open, and fully competitive market; that if the buying program had a psychological effect upon the independent refiners tending to make them more firm in their demands for price, such effect was not sufficient to make them unreasonable for the reason that the program never went more than from week to week, and that there was never any commitment or assurance that it would last beyond the current week. That in spite of the fact that the major companies distribute something in excess of 75 per cent of the gasoline in the Standard of Indiana territory, there never has been a time and there was not a time during the continuance of this program when the major companies were in fact able to control the market, and that even if a group of major companies raise the price, unless the independents follow, the efforts of the majors are fruitless, and they are compelled to restore the former price, and that as a matter of fact they did not among them have the power to control the market. That upon the record there was no substantial evidence to go to the jury as to whether or not the efforts of the defendants were effectual in controlling the price of gasoline as charged in the indictment, or to what extent, if any, the rise in the market price resulted from such activities, as distinguished from other factors then operating, such as enforcement of restrictions on shipments of illegally produced crude under the Connally Act, the natural economic recovery, and the seasonal recovery; and that these latter factors were largely, if not entirely, responsible for the rise in price which took place; that there was no evidence in the record that the portion of the rise in price which could be attributed to the activities of the defendants was unreasonable or unreasonably attained. That the price achieved in the buying movement conceded to have existed in the Mid-Continent field, and the result achieved in East Texas, whether with or without concert, was only a price which was on a parity with the price of crude. That the price was entirely reasonable, and that it is, under the doctrine of the Appalachian Coals, Inc., case 288 U. S. 344, no violation of the Sherman Antitrust Law for individuals or corporations engaged in an industry to get together on a reasonable program calculated to eliminate certain abuses that have grown up in that industry, and that they have not in this case exceeded the limits of what was held in that case to be lawful.

The foregoing are most of the contentions of the defendants, some of which are supported by the evidence.

The theory upon which the government tried this case is grounded upon the Trenton Potteries case, 273 U. S. 392.

The government admites that while there were abuses involved in the nature of bad practices, nevertheless the motivating purpose of the defendants was not the alleviation of this condition, but the arbitrary raising and fixing of prices. It contends that the price attained and the progressive rises in price between March and June, 1935, were in effect "rigged" or controlled prices brought about by the defendant major companies for their own benefit and profit. It concedes that unlawful or "hot" oil had been a factor in bringing about unfair prices, but contends that the passage of the Connally Act and the enforcement of its provisions would naturally have brought about a normal and healthy price level without the intervention of the defendants, and that the defendants knew that circumstance, but nevertheless went ahead bringing about progressive rises in price which they were able to predict to a fraction of a cent each time, showing that the market was actually a controlled market. That the arrangement by which prices were suggested and the various major companies were assigned one or more independent refiners called "dancing partners" amounted to even more than a conspiracy among major buyers and, in fact, included independent sellers, and this for the very purpose of making certain that the market would be under control. That while the buying program in the Mid-Continent field originated at a time when the petroleum code was still in effect, that it nevertheless went beyond the authority given by governmental officers for the alleviation of the conditions of distress gasoline, and then when the code ceased to be in effect, the defendants continued the program, well knowing that it then had no color of legality. That while there is testimony tending to show that the action was voluntary, and that while no commitments were made and nobody was obligated to buy or to pay any particular price, the course of conduct of the defendants in the buying indicates the contrary, and that they did in fact absorb this surplus gasoline pursuant to a concerted arrangement. That the fact that the allocation between the defendants bore no relation to their production or distribution or to the apparent equities of the situation, was another part of the scheme to camouflage the operation and make it appear to be one without concert, but that the references to East Texas movement in the testimony and documentary evidence are adequate and competent to show that it was in fact an action concerted between the defendants. That the leveling off of prices from June, 1935, to December, 1935, is evidence of the circumstance that the defendants had the market price under control and that the price rise of one-half cent in January, 1936, was purely arbitrary, against seasonal demand, at a time when public buying was at a low ebb, inventories entirely adequate, and that the advance in the price of crude was manipulated and controlled by the defendants.

That while the purchases of the defendants were for the most part at the low or slightly under the low of the market, the fact is that the independent refiners could rely upon this buying program for their distress gasoline, which put them in a position to demand higher prices with confidence, and that while the major buying appeared to follow rather than lead the market, in fact it was the stimulating and activating cause of the repeated rises in market price between March, 1935, and June, 1935, and of the further rise in January of 1936.

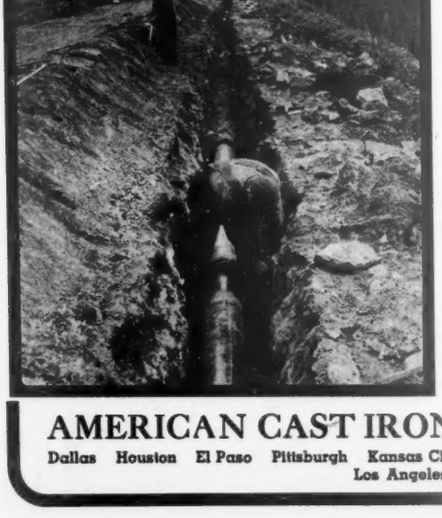
The government contends that there is ample proof in the record that the buying programs were the activating and efficient cause of the price rises, that the market was under the control of the defendants, that the repeated rises did, in fact, result from the activities of the defendants in the two buying program as charged in the indictment.

The evidence was, in general, in conflict. It does appear without dispute that a concerted buying movement took place in the Mid-Continent field. Its character was in dispute. If the program was aimed at price-fixing as such, it is sufficient that it was artificial and controlled. I am satisfied that there was ample evidence to take the case to the jury on these issues as well as on the issue of whether or not there was a concerted program in East Texas, and as to its character. While that program took an outward form and appearance of a sellers' program, there were facts and circumstances substantiating the claim of the government that it was in fact a program devised and maintanied by the defendants, which the jury had a right to believe.

There were proofs sufficient to sustain the verdict as to the allegations in the indictment that the defendants were able to and did effectually tie the jobbers' price in the Standard of Indiana territory, which includes the western district of Wisconsin, to the tankcar price in the spot market, and so to the artificial price the jury found the defendants brought about.

It is claimed by the defendants that they did not have the power to control the price as charged, and that in as much as some of the large companies did not or have not been shown to have participated in the movement, the power of the defendants in that respect was inadequate for the purpose. This does not follow, for the reason that large buyers both in East Texas and in the Mid-Continent fields while acting separately, were nevertheless buying for their requirements in these fields, as they had always done and as defendants had every reason to believe they would continue to do. The defendants were thus able to consider that these buyings would necessarily reduce the available gasoline which they proposed to take off the market just as effectively as though these other companies had joined in the program. The amount of distress gasoline would be exactly the same in any event,

MONO-CAST DOUBLEX SIMPLEX PIPE REPLACING SUBSTITUTE PIPE WHICH FAILED AFTER 7 YEARS



THIS line of 8" Mono-Cast Doublex Simplex Pipe (tar-coated outside) being installed for gas service at 20-40 lbs. operating pressure in an eastern state, replaces a line of substitute material installed in 1931; only three years after installation, the substitute material began to require repairs until this Spring, after only 7 years of service, repairs became so excessive that it was replaced as shown above. Line is located in filled ground consisting of slag, cinders, brick bats, etc. Write for literature on Mono-Cast Doublex Simplex Pipe — especially designed for gas and oil transmission and distribution, particularly where super-service is required.

AMERICAN CAST IRON PIPE COMPANY BIRMINGHAM, ALABAMA

Dallas Houston El Paso Pittsburgh Kansas City Chicago Minneapolis New York City Cleveland Los Angeles San Francisco

and the proof shows that the surplus was in fact a very small part of the total, so much so that most of the defendants have shown that its acquisition in addition to other buying did not materially increase their inventories. I am satisfied that there was ample evidence to sustain the contention of the government that the defendants did have the power to control the market, and that they did so, as charged.

There was, in my view, evidence to go to the jury and to sustain its verdict as to every essential charge in the indictment as to the defendants, Charles E. Arnott, P. E. Lakin, H. T. Ashton, Robert W. McDowell, R. H. McElroy, Jr., Socony-Vacuum Oil Co., Inc., Wadhams Oil Co., Empire Oil & Refining Co., Continental Oil Co., Pure Oil Co., Shell Petroleum Corp., Sinclair Refining Co., Mid-Continent Petroleum Corp., Phillips Petroleum Co., Skelly Oil Co., Globe Oil & Refining Co. (Illinois) and Globe Oil & Refining Co. (Oklahoma). The jury's verdict as to these defendants will be sustained, and

It is ordered and adjudged that the motions of said defendants for an order setting aside the verdicts and for a new trial be and they are hereby denied, to all of which the said defendants may each have an exception.

Madison, Wis., July 19, 1938.

PATRICK T. STONE,
United States District Judge,
Western District of Wisconsin.

CALIFORNIA REVIEW

(Continued from Page 128)

CALIFORNIA

Summary of Wells Completed First Half of 1938

Northern district—	Oil wells	Prod.	Dry
Belridge—north	13	12,182	0
Belridge—South	3	135	0
Canal	7	15,194	0
Canfield Ranch	1	750	0
Coalinga	1	5	3
Edison	0	0	1
Elk Hills	2	65	0
Fruitvale	10	2,860	1
Greeley	6	12,433	9
Kern River	12	627	5
Kettleman Middle dome	0	0	0
Kettleman North dome	15	24,369	0
Lost Hills	2	54	4
McKittrick	0	0	4
Midway-Sunset	22	2,458	10
Mountain View	2	3,239	3
Mount Poso	10	2,207	8
Rio Bravo	9	27,595	0
Round Mountain	23	6,904	9
Ten Section	14	39,743	0
Wasco	1	3,000	0
Wheeler Ridge	0	0	0
Total	153	153,820	57
Coastal district—			
Capitan	3	379	0
Elwood	0	0	0
Rincon	3	820	0
San Miguelito	1	161	0
Santa Barbara	0	0	0
Santa Maria	70	69,100	6
Summerland	0	0	0
Ventura Avenue	11	16,810	1
Ventura-Newhall	7	1,010	3
Watsonville	0	0	0
Total	95	88,280	10
Southern district—			
Brea Olinda	1	32	1
Coyote—East	2	520	0
Coyote—West	4	926	0
Dominguez	9	2,364	0
El Segundo	16	9,209	3
Huntington Beach	3	285	0
Inglewood	1	267	0
Lawndale	0	0	0
Long Beach	25	6,616	3
Los Angeles-Salt Lake	0	0	0
Montebello	9	12,589	1
Newport	0	0	0
Playa Del Rey	0	0	0
Potrero	1	510	0
Richfield	13	2,761	2
Rosecrans	9	8,473	0
Santa Fe Springs	2	141	0
Seal Beach	1	194	0
Torrance	20	6,230	0
Whittier	0	0	0
Wilmington	164	239,872	1
Miscellaneous	0	0	58
Total	280	290,989	69
Total all fields	528	533,089	136
Gas fields—			
Buena Vista Lake	0	0	0
Buttonwillow	0	0	0
Chowchilla	0	0	0
Delano	0	0	0
Dudley Ridge	0	0	0
Goleta	0	0	0
McDonald Island	1	gas	0
Rio Vista	4	gas	1
Semi-Tropic	0	0	1
Tracy	0	0	0
Total gas fields	5	gas	2
State total	533	533,089	138

Completions by Months

Month—	Comp.	Prod.	Dry
January	119	85,446	35
February	70	78,461	17
March	82	90,290	26
April	89	88,604	21
May	96	113,352	21
June	77	76,936	18
Total first half year, 1938	533	533,089	138
Total first half year, 1937	548	268,861	145
Total first half year, 1936	382	183,541	171
Total first half year, 1935	365	380,105	158
Total first half year, 1934	183	254,210	80

Texas-Louisiana Petroleum Directory

Barkley's "Texas-Louisiana Petroleum Directory for 1938," recently published, will prove of distinct value to oil men and all others requiring as complete a list as possible of those connected with the petroleum industry in Texas and Louisiana. As far as is known this is the only state directory attempting to provide coverage of Texas.

This directory presents lists (by districts) of oil companies; drilling and pipe line contractors; geologists; engineers; oil field supply companies; royalty firms; partnerships and individuals engaged in the oil industry. It also contains lists of abstracters, map companies, and inspectors for the two states and for four counties in Arkansas, and includes general information pertaining to the oil industry in this territory.

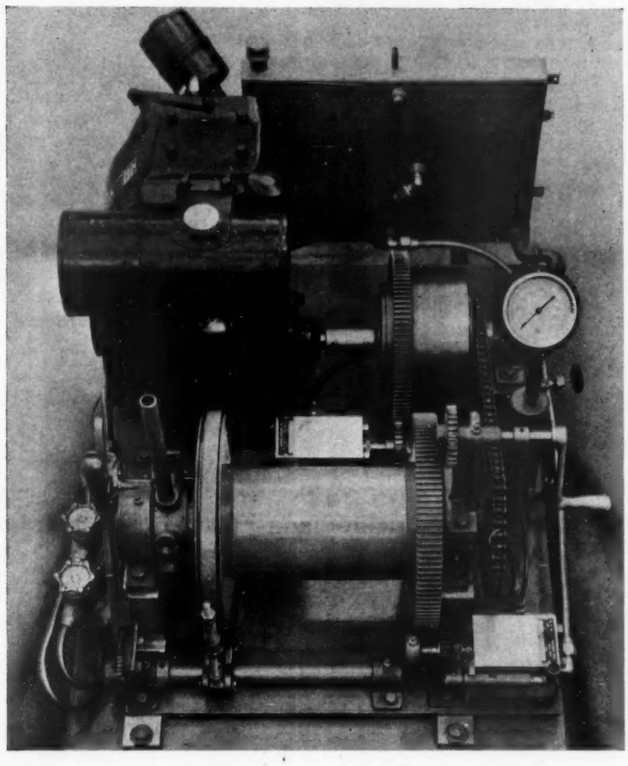
"Texas-Louisiana Petroleum Directory for 1938" may be purchased through the Book Department of The Oil and Gas Journal at the established retail price of $6.00, express prepaid (postage additional outside the United States), and a copy will be forwarded promptly upon receipt of check or money order. Where payment or purchase order is not included the book will be shipped express c.o.d. to avoid delay.

National Motor Truck Show In New York in November

A meeting of exhibitors of the Fifth Annual National Motor Truck Show was held in the Port of Authority Building, New York, Monday, July 25, at 2:30 p.m., according to an announcement by President J. F. Winchester, for space assignment at the exhibition November 11-17.

A Complete Unit for—

C. A. Mathey Measuring Line Reel



Measuring depth of wells—Locating an obstruction—Locating fluid level—To run bottom hole pressure and temperature bombs.

Unit mounted in trailer. Powered by 4 h.p. gasoline engine

5 Points of Superiority

1. Mathey measure meter and Hay pulley available for all types.
2. Hydraulic governor controls speed of line when running-in.
3. Hydraulic speed control with overload attachment prevents line breakage and controls speed when coming-out.
4. Hydraulic weight indicator.
5. Driven by power take-off from car, or self contained gasoline engine power.

Write for descriptive catalog

C. A. MATHEY MACHINE WORKS

305 East 3rd St. Tulsa, Oklahoma

The QUICKEST WAY *to Find Oil*

...Employ the company that made this record

★ ★

WORK DONE

12% of the total seismograph surveys made in the area shown here since March, 1932.

RESULTS

36.6% of all new oil fields opened here since March, 1932, were drilled on our work.

Realizing early in the game that faulting existed in the Gulf Coast we have constantly worked to improve our technique in finding and delineating faults. Fair results have been obtained with the original methods, but far better results are to be expected from our new equipment and technique.

Our alertness to new ideas and constant improvement in instruments and methods keeps **Independent's** clients ahead in their search for new oil reserves. Our new SOGAD amplifier, the very latest improvement in instrument design, gives clients an added advantage in the search for the faulted low relief structures of the Gulf Coast.

Service to clients extends throughout the United States and Foreign Fields. Complete information and cost estimates furnished without obligation.

INDEPENDENT

ESPERSON BUILDING — EXPLORATION COMPANY — HOUSTON TEXAS

POINTING THE WAY FOR THE DRILL

Experienced in 22 States and in Foreign Fields

FIELD OPERATIONS

Summarizing the Week's Developments

KANSAS—The Mississippi lime discovery well in the Weathered pool, Cowley County, made potential of 3,124 bbls. of oil. Other Weathered production is from Kansas City and Arbuckle limes. A Russell County outpost found Arbuckle production in section 29-13-14w, and a new producing area between the Trapp and Coralena pools in that county was opened in section 17-15-13w.

OKLAHOMA—The Noble pool opener in section 12-7-2w, Cleveland County, on production since May, was completed for 454 bbls. of oil and 1,258 bbls. of water on the pump. A small pool opener was completed in section 7-6-6, Seminole County. The tenth producer in the Ramsey pool was completed for 8,302 bbls. of oil daily. Work was started at two Ordovician wildcats in Washita County, western Oklahoma.

WYOMING—A 1,570-bbl. well was completed in the Lance Creek field and a well in the Warm Springs district was bailing at the rate of 25 bbls. an hour.

TEXAS—A dry hole on the west side of the K.M.A. field in Wichita County tells its own story. It was the farthest northwest test in the field. A new producing horizon was uncovered in Archer County, 4 miles east of the Hull-Silk pool, at 4,740-58 feet, and a new pay, the Ellenburger, was found in Wilbarger County in the Rock Crossing pool, the discovery well flowing 51 bbls. in three hours, then quitting. Oil showings are reported in the Buffalo-Woodbine sand gas structure in Leon County, at 5,538-86 feet. Rhodes & Tompkins' pool opener in south central Cowden County, West Texas, gauged 1,040 bbls. per day. A prospective pool 2 miles southwest of the Hawley field in Jones County is indicated, and a wildcat on the Hammonds lands in the Moses Little Survey in Brown County is flowing by heads. A 2,000- and an 1,800-bbl. well in the Bennett pool in Yoakum County were features. The Gulf Coast area went through a week without any pool discovery or new sand. Two important extensions to the Alice field in Jim Wells County are recorded.

LA-ARK-TEX—A pool on the northwest edge of the city of Shreveport, La., was opened in the past week by a well that gauged 499 bbls. of 43.9-gravity oil per day through quarter-inch choke. Several new wells have started drilling in the new Magnolia pool in Columbia County, Arkansas, all destined for the Smackover lime.

KENTUCKY—Two producing wells and three wells in the pay were reported from the Birk City pool in Henderson and Daviess counties. The Daviess side of the pool was extended about three-quarters of a mile northeast of the discovery well in the McClosky lime in that county.

CALIFORNIA—Forty-five feet of "good looking oil sand" was found in the Rio Bravo field below the present productive Rio Bravo pay horizon, and at a depth of 12,264 feet, and the discovery is regarded as most important. After several months barren of results, the El Segundo field added two producers and 1,442 bbls. of new production.

MICHIGAN—A wildcat in Overisel Township, Allegan County, either opened a new pool or will prove a connecting link to the Salem and Monterey pools. The discovery well gauged 400 bbls. in six hours from the Traverse formation. The recent pool opener in Clare County is flowing more than 250 bbls. a day.

Completions in All Fields

(Week Ending July 23, 1938)

	Oil	Gas	Dry	Total	1938 total comp. to date	1937 total comp. to date
N. Y., Pa. and W. Va.	56	12	4	72	2,182	2,432
Ohio	7	5	9	21	520	651
Indiana	0	0	0	0	42	49
Kentucky	16	9	4	29	475	295
Illinois	39	0	10	49	699	45
Michigan	10	0	4	14	457	477
Kansas	14	2	6	22	934	1,399
Oklahoma	15	1	19	35	993	1,618
Texas:						
North Central Texas	32	1	14	47	1,735	1,627
West Texas	40	0	3	43	1,156	1,510
Texas Panhandle	6	5	0	11	348	398
East Texas	36	0	1	37	1,199	1,244
East Central Texas	5	0	3	8	206	405
East Texas Border	4	0	0	4	87	226
Gulf Coast Texas	32	1	8	41	713	829
Southwest Texas	24	0	15	39	1,148	1,846
Total Texas	179	7	44	230	6,592	8,085
North Louisiana	9	2	5	16	352	333
Gulf Coast Louisiana	2	0	0	2	256	265
Total Louisiana	11	2	5	18	608	598
Arkansas	3	0	0	3	134	74
Montana	0	2	0	2	49	107
Wyoming	3	0	4	7	93	54
Colorado	0	0	0	0	6	6
New Mexico	7	0	0	7	309	435
Utah	0	0	0	0	1	1
California	19	1	4	24	746	861
Total United States	379	41	113	533	14,840	17,187
Total previous week	311	35	100	446		
Difference	68	6	13	87		

Outstanding Fields--Highlights

(Week Ending July 23, 1938)

FIELD—	Rigs up	Wells drlg.	Weekly oil completions	Initial prod.	Total No. oil wells	Daily av. prod.
TEXAS						
K.M.A.	84	126	18	13,486	611	16,174
Hastings	3	7	3	1,826	561	19,500
Saxet	1	12	1	204	605	32,707
Benavides	1	11	1	10	214	11,739
East Texas	24	97	36	1,940	25,416	438,915
Ector County	14	73	14	20,926	1,170	44,905
Winkler County	7	10	6	4,382	1,672	40,548
OKLAHOMA						
St. Louis	4	24	0	0	662	19,375
Oklahoma City	4	9	0	0	1,088	104,450
KANSAS						
Barton County	2	19	3	594	333	10,586
Stafford County	2	17	2	863	150	4,068
Rice County	3	18	2	843	1,182	28,626
Russell County	4	20	2	696	1,099	23,186
NEW MEXICO						
Lea County	13	92	7	1,117	1,787	94,040
LA-ARK-TEX						
Rodessa, La-Ark-Tex	4	14	4	735	1,009	73,495
Cotton Valley (deep)	2	14	3	1,640	77	11,440
Lisbon, La.	3	15	2	2,320	245	10,865
Schuler, Ark.	2	15	3	3,565	72	24,125
MICHIGAN						
Buckeye	1	16	4	1,050	425	19,908
ILLINOIS						
Central Illinois	38	201	39	8,806	688	43,099
CALIFORNIA						
Wilmington	4	27	4	6,223	516	92,750
KENTUCKY						
Birk City	3	9	2	760	23	2,560

Eastern Field Report

By STAFF CORRESPONDENT

Deep Wildcat in W. Virginia Shows 180,000 Feet of Gas

PITTSBURGH, Pa., July 25.—Important news came from a deep wildcat in West Virginia which will excite interest in the Lower Devonian. In Ravenswood district, Jackson County, Joe Rubin drilled 6 inches into the Oriskany sand on the W. J. Brown farm and shut down with a showing of 180,000 feet of gas to case the hole before deepening in the sand.

It is one-quarter mile above the town of Ravenswood on the Ohio River and is on the west uplift from the trough of the Parkersburg syncline. The surface elevation is 586.40 feet and the Corniferous lime was topped at 4,157 feet with the Oriskany sand at 4,257½ feet. Earlier in the year W. H. Petry drilled a test on the D. O. Curry farm in this district which had a surface elevation of 624.48 feet and topped the Corniferous lime at 4,600 feet and the Oriskany sand at 4,798 feet. This test was east 3 miles, south 1 mile, from the test on the Brown farm proving the new test 404 feet higher on structure.

This test is the first successful one on either flank of the Parkersburg syncline and if after deepening and shot, it proves a commercial well, it will alter the present search for reserves.

In Southwest Pennsylvania, the two rotary tests continue to focus interest as both are drilling in the Lower Devonian, one having apparently reached the Oriskany sand. In Westmoreland County, the test of Peoples Natural Gas Co. on the John S. Marshall farm on the Grapeville anticline in Penn Township, topped the Oriskany sand at a depth tentatively set at 7,588 feet or an Onondaga section of 145 feet. Drilling then became extremely hard and three days' grinding produced 10 feet. A drill stem test in the top of the sand was without result.

In Allegheny County, the rotary test of South Penn Oil Co. and others on the Fred Backhaus farm on the Kellersburg anticline in West Deer Township has reached 6,688 feet and still showing lime. With the top of the Onondaga at the revised figure of 6,361 feet, this gives an Onondaga section to date of over 320 feet. Coring was again started at 6,681 feet. No solid Oriskany body has been reported.

Completions in the lower Eastern fields totaled 17 during the week of which 3 were dry holes, 11 gas wells, and 3 producers with a daily initial of 85 bbls., most of which was in Southeast Ohio.

SOUTHEAST OHIO

Four wells only were reported from Southeast Ohio during the week. In Ashland County, G. J. Harmon and others completed a test on the John C. Emerick farm in section 3, Lake Township, in the Clinton sand at 3,046 feet, gauging 500,000 feet.

In Licking County, Kundtz-Hulse, Inc., and others completed a second test on the Madison Billman farm in the northwest quarter section 12, Fallsbury Township, in the Clinton sand at 3,107 feet. It was shot but not swabbed and is showing for a 15-bbl. pumper.

In Medina County, Preston Oil Co. completed a more than fair shallow producer in No. 27 Bertha B. and J. J. Parent, Tract 16, Lot 5, Chatham Township, in the Berea Grit at 374 feet. It produced 60 bbls. the first day after shot.

In Morgan County, H. H. Schwartz, Jr., trustee, completed No. 10 A. A. Boileau, at Joy, in section 2, Homer Township, in the Macksburg 500 Foot sand at 491 feet, gauging 125,000 feet.

In Trumbull County, Norwood P. Johnston and others are running 5-inch casing on the G. M. Porter farm west of the Mecca Crossroads in Mecca Township. Total depth to date, 3,869 feet.

SOUTHWEST PENNSYLVANIA

Two gas wells were completed in Southwest Pennsylvania, one an old hole. In Greene County, Equitable Gas Co. deepened No. 1 F. Allman, in Greene Township, to 2,756 feet. The Bayard sand was at 2,705-25 feet with 92,000 feet of gas at 2,725 feet, showing a rock pressure of 42 pounds.

In Washington County, D. D. Caldwell, agent, completed No. 4 Eva Caldwell, in Hanover Township, in the Salt sand at 745 feet, gauging 140,200 feet, with a rock pressure of 84 pounds.

In Amwell Township, Washington County, Carnegie Natural Gas Co. started to clean out No. 2 N. B. Redd near the National Highway and deepened it 14 inches with a show of oil and gas. At 2,590-91 feet the well made several flows which totaled over 100 bbls. and has a gauge of 500,000 feet a day. The oil flows are subsiding.

In this township, No. 1 L. Bronder, being deepened by F. K. Fawcett and others, which reached the Fifth sand to have the rig destroyed by fire from an unexpected oil flow, has now been conditioned and is being swabbed. The first two days 172 bbls. were swabbed.

In South Strabane Township, Washington County, Penn Ohio Oil & Gas Co. is drilling at 1,450 feet on the W. E. Davis farm. In Hanover Township, Coulter and Duncan are drilling No. 1 John Dennis at 1,690 feet.

Greene County

In Greene Township, Greene County, Carnegie Natural Gas Co. is deepening No. 2 Morris at 3,296 feet.

In Washington Township, Equitable Gas Co. is spudding on the John Huffman farm, and deepening No. 1 W. L. Jacobs, Franklin Township, at 2,300 feet, and No. 1 Thorp at 2,165 feet.

In Center Township, Charles Mong has reached 2,060 feet in No. 3 Jesse L. Metz. J. B. Orndoff has a gas well estimated at 150,000 feet in the Carroll sand at 1,550 feet, in No. 2 G. M. Scott.

In Richhill Township, Penn Oil & Gas Co. is ready to spud the Ealy-Conklin test. Furman Nuss has reached 2,832 feet in No. 2 Charles Swart. In Aleppo Township, Cochran and others have reached 1,700 feet and are cementing in No. 4 John Strope.

Deep Tests

On Chestnut Ridge, Fayette County, Greensboro Gas Co. is drilling at 7,715 feet on the J. R. Thompson farm in Wharton Township. This is an Onondaga section of 375 feet with sand interspersed from 7,556 feet and less sandy at the present time.

In North Union Township on this structure, Wasson & Co. have reached 4,655 feet on the J. H. Sorg farm. In Springhill Township, L. J. Houze Convex Glass Co. is drilling at 6,000 feet on the Paul Dunham farm.

In Beaver County, John T. Galey and others have reached 3,900 feet on the Eliza Allen heirs in South Beaver Township, with fast time being made.

WEST VIRGINIA

Only one producer was completed in West Virginia. In Harper district, Roane County, O. H. Reed and others completed a second test on the P. V. Litton farm in the Salt sand at 1,655 feet good for at least 10 bbls. a day.

In Cabell County, Kentucky-West Virginia Gas Co. deepened No. 2 W. E. Farley in McComas district from 1,341 feet and got 55,000 feet of gas 24 hours after shot at 3,155 feet.

In Calhoun County, O. K. and M. Rogers completed a second test on the D. M. Miller farm in Sheridan district at 2,260 feet, the Injun sand, as a small gas well.

In Gilmer County, McCall Drilling Co. completed a test on the Fleet A. Fling farm in DeKalb district at 2,155 feet, Big Injun sand, gauging 106,000 feet. In Glenville district, A. E. Ellis drilled on the A. M. Self heirs' farm to 3,220 feet with the Injun sand at 2,050-75 feet, and dry.

In Harrison County, Hope Natural Gas Co. drilled a test on the M. J. Frances farm in Coal district through the Speechley sand to 3,006 feet, also dry.

In Monongalia County, a delayed report places the second test of Ira Donley on the Louisa Miller farm in Cass district as a gas well in the Fifty Foot sand at 2,368 feet. The gauge was 100,000 feet.

In Roane County, Massey & Jarvis completed a second test on the C. O. Surface farm in Geary district as a gas well at 1,290 feet. The Salt sand was at 1,265 feet with gas at 1,269-74 feet and 1,284-90 feet, and a gauge of 200,000 feet before shot.

In Wayne County, Owens-Illinois Glass Co. completed the test on the B. J. Pritchard farm in Stonewall district at 3,438 feet, gauging 425,000 feet.

In Wetzel County, D. Henthorn drilled on the Santford Wood farm in Proctor district and it was dry.

Oriskany Gas Field

Included now in the Elk-Poca Oriskany gas pool in Kanawha County is the newly completed test of Cunningham Gas Co. on the E. F. Cunningham farm in Ripley district, Jackson County. It is about 1 mile north of the southern apex of Jackson County which extends into the field. It was completed at 4,941 feet with the Oriskany topped at 4,928 feet and gauging 5,000,000 feet a day after being shut in overnight. While drilling in the sand, the gauge was about 2,000,000 feet.

The final gauge of Joe Rubin's test on the Carney heirs' farm on the northwest edge of the pool was 3,500,000 feet, and a rock pressure of 1,950 feet.

South Penn Oil Co. completed No. 5 T. H. Newhouse in Poca district with the top of the Corniferous at 4,952 feet; Oriskany 5,056 feet, and total depth 5,074 feet and a final gauge of 14,270,000 feet.

In this district, United Fuel Gas Co. has reached 5,020 feet and is casing in the Corniferous on the W. A. Fisher and others farm. This company is down 1,660 feet in the No. 4787 W. J. Glass and others; at 3,180 feet in No. 4788 I. W. Cavender; at 2,020 feet in No. 4791 W. J. Glass; at 1,372 feet in No. 4797 T. F. Good and others; at 855 feet in No. 4799 O. V. Milam and others; at 1,385 feet in No. 4801 Floto Johnson; at 1,568 feet in No. 4803 Lillie Dawson; spudding 50 feet in No. 4804 Odell and Glass; and building rigs for No. 4802 J. W. Harding, and No. 4805 Milam and Odell.

United Carbon Co. is down 2,060 feet in the I. C. Miller test, and at 4,400 feet in the Louisa E. Long test. Mullins Gas Co. has reached 1,660 feet in the J. C. Fisher and others test; 1,435 feet in the W. H. Odell test; and 145 feet in the Earl K. Johnson test, with a location on the Manfred Fisher and others farm. Spartan Gas Co. is down 3,915 feet on the R. B. and Fred Baldwin farm.

Columbian Carbon Co. is drilling at 4,707 feet in the Johnson and Gibson test; at 1,755 feet in the L. P. Rollins test; at 1,720 feet in the Lena Castro test; at 750 feet in the W. H. Odell and others test. West Virginia Gas Corp. is down 1,155 feet on the Fisher-Newhouse farm, and 1,900 feet in the Spencer-Canterbury test. Geary Morley Gas Co. has reached 2,660 feet in the Diana J. Milam heirs' test. Poca Fork Oil & Gas Co. is fishing at 1,834 feet in the Levi Combs test. Lima Gas Co. is rigging up on the A. T. Mairs and others test.

In Elk district, Columbian Carbon Co. has reached 2,498 feet in No. 12 C. W. Vickers; 1,340 feet in the

(Continued on Page 223)

Gone with the Wind!

As fleeting as a Mid-Summer Night's Dream are the profits of petroleum products held at atmospheric pressure in tanks with open vents. That is the logical conclusion of data presented to the A.P.I. by engineers of a major oil company who conducted extensive tests to determine evaporation losses on a 55,000-barrel full Mid-Continent gasoline storage tank of standard steel deck construction with open vents.

Specifically, they found an average daily evaporation loss of 7 barrels, or 4.7% of the volume stored per year. They also showed that this loss could be reduced 49% by making the tank gas tight and holding it under 0.9″ water pressure or vacuum. In cold cash, the avoidable evaporation of 7 barrels of 42 gallons, figured as low as 3 cents a gallon, figures a daily loss of $8.82, running into a yearly total of $3219.30. By making the tank gas tight and holding it under 0.9″ pressure or vacuum, this loss is reduced to $1557.46.

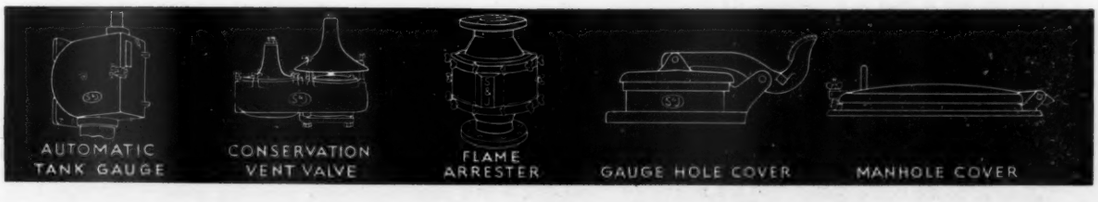
Now it requires an expenditure of only one fourth that amount to make a 55,000 barrel tank gas tight with the S. & J. Fittings shown below. Where could you make a better investment than one that returns a 400% dividend every year, as long as the storage facilities are in use?

S. & J. offers a complete line of gas tight fittings for the conventional low pressure refinery and bulk storage tanks, as well as for spherical and spheroidal tanks which operate at higher pressures. May we tell you how low the cost of making your tanks gas tight, and in addition giving you the advantages of automatic gauging and greater fire safety.

SHAND & JURS CO.

BERKELEY, CALIFORNIA

295 Madison Avenue, New York
225 W. 11th Street, Los Angeles
601 Fannin Street, Houston



SHAND & JURS

North Louisiana, Arkansas

By GEORGE WEBER

Cross Lake and Cotton Valley Outstanding Districts of Week

SHREVEPORT, La., July 25.—Interest in the newly discovered oil field on the northwest edge of Shreveport ran high during the past week, with leasing very active in a number of areas around the city. New locations for outpost tests to the new Cross Lake strike are expected shortly, but most of such operations are still in the rumor stage.

Cotton Valley drilling is getting under way on the south, southeast and southwest edges, a play which will attract considerable interest in a few weeks. Lisbon, while extended recently by a southwest outpost, was delimited on the northeast by a dry hole this week, and a northwest outpost is due to be abandoned.

Deeper shows in the Converse field of Sabine Parish, a wildcat in De Soto Parish, and increased activity in the Magnolia-Village area of Columbia County, South Arkansas, comprise the remaining developments of interest in the tri-state area this week.

Shreveport Discovery

Following a production gauge taken early this week, R. E. Allison No. 1 Ellerbee has been shut in awaiting pipe line outlets. The well showed 499 bbls. per day of 43.9 gravity oil through a quarter-inch choke, with tubing pressure at 850 pounds and casing pressure at 1,190 pounds. The test also gauged about 500,000 feet of gas, showing a good gas-oil ratio.

By the end of the week, no pipe line connections to the new well were yet promised, although it is believed several purchasers are interested. The oil is being analyzed by a number of interested companies. A general analysis shows it to have a pourpoint of zero, a trace of basic sediment and water and .34 per cent of sulfur.

A breakdown of the crude shows 25 per cent of 380 endpoint, 44-octane straightrun gasoline, 20 per cent of 40.9 gravity kerosene with a 510 endpoint and a 350 initial. Gas oil content runs 35 per cent of 38.5 gravity stock, which it is estimated can be cracked to give 40 per cent gasoline. Bottoms or fuel oil runs 18 per cent of 22.1 gravity stock with a 110 cold test.

Leasing is particularly active in the immediate vicinity of the Allison block, across Cross Lake, and in the southeastern and southwestern outskirts of the city. J. P. Driscoll has made location for a test nearly 2 miles east of the discovery well.

Lisbon Developments

The Lisbon field continues to be one of the most active drilling areas in the section, with development of primary interest confined to the south and southwest edges. During the early part of the week, Prairie Oil & Gas Co. brought in No. 1 S. Lloyd, in section 10-20-5, for a southwest edge producer, extending production in that direction.

The well made 52 bbls. per hour through a 36/64-inch choke with casing pressure of 200 pounds and tubing pressure of 150 pounds. The well was acidized with 5,000 gallons in the saturated lime section at 5,301-13 feet.

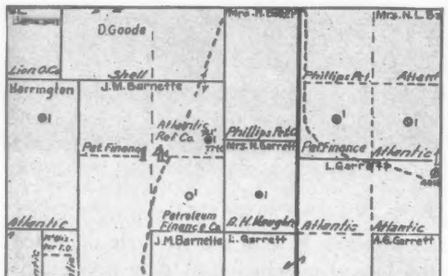
Located in a northeast outpost position to the field, Atlantic Refining Co. No. 1 Enloe, section 28-20-4, this week encountered the producing horizon, but found no porosity. A drill-stem test at 5,168-85 feet showed recovery of 650 feet of mud in 20 minutes, and the outpost has been abandoned at total depth of 5,200 feet.

In a northwest direction from the field, E. T. Oakes and others No. 1 Kilgore, although not yet officially abandoned, is swabbing small quantities of oil, and is expected to be abandoned shortly. It is reported the operator plans to drill an offset test.

Cotton Valley

Interest in the Cotton Valley field has heightened considerably since the discovery of oil in the Bodcaw and the "D" sand of the Lower Marine series. Offset tests are under way on the south edge where Midstates Oil Co. brought in No. 1 Welori Lumber Co. a few days ago as the initial producer in the "D" sand stringer immediately above the Bodcaw sand. A north offset is also being drilled to Stanolind Oil & Gas Co. No. 1 Pardee, southwest outpost which opened the first crude production in the Bodcaw sand itself.

In addition, Oliphant Oil Corp., newly formed company of A. G. Oliphant, has staked location for a southwest edge test, No. 1-B Stewart, about 1½ miles due west of the Mid-States well. During the week, three wells were completed in the field proper, two producing from the Holloway sand, and the third a gas-distillate well in the Bodcaw horizon.



Globe Map Co., Shreveport

The Magnolia field in Township 17-21w, Columbia County, Arkansas, is receiving considerable attention, as four tests get under way

Magnolia Field

Drilling activity is beginning in several tests in the Magnolia field of Columbia County, South Arkansas. The discovery well, drilled and completed by Kerr-Lynn Oil Co., and later sold to Atlantic Refining Co., together with a considerable amount of leases, is being offset on the south and southeast, and three other tests are getting under way in outpost locations on the east and west. Atlantic Refining Co. is moving in on No. 1 Baker and No. 1 Harrington, east and west outpost tests respectively, and Petroleum Finance Co. has staked locations for No. 1 Baker and No. 1 Barnett, the former rigging up. In addition, G. H. Vaughn is beginning operations on No. 1 Garrett, in a southeast offset location to the discovery well. As these numerous tests reach the Big lime or Smackover lime, which is the producing horizon, important developments will be forthcoming, and success of the outposts will be a major factor in the laying of a pipe line for outlet of the new production.

The Village field, lying immediately to the east of Magnolia, is also undergoing initial development, and outcome of the tests drilling in the two areas will determine in a large part the drilling programs of operators who hold leases in the southeast Columbia County area. It is believed the two fields, which produce from the same horizon, may possibly join, but considerable additional drilling will need to be done before this can be proven.

The Farmerville wildcat, Standard Oil Co. of Louisiana No. 1 Frost Lumber Co., this week was a failure, being abandoned at a total depth of 9,983 feet. The test, begun by Joe Modisett last year, was taken over later by Standard, which encountered a show of gas in sand at 9,731-37 feet, but no commercial production. The test is in Union Parish, in section 14-21-1e.

The Jefferson section of Marion County Rodessa is due an important development. Arkansas-Louisiana Gas Co. No. 1 Johnson, in the Johnson Survey, southwest of the field, after running low in comparison with the same operator's No. 1 Pitts, encountered the anhydrite this week at 4,882 feet, and checked 33 feet higher than the Pitts. No. 1 Pitts, about 2 miles southwest of production in the Jefferson field, was completed several weeks ago in the Hill sand for a gasser. No. 1 Johnson, which is 1½ miles southwest of Pitts, is an important outpost test, and on its success depends much of the new development to be undertaken in the area.

Estimated Production

Estimated daily gross production, all companies, for week ending July 22 follows:

NORTH LOUISIANA

	Bbls.
Bellevue	605
Caddo light	4,170
Caddo heavy	2,455
Converse	550
Cotton Valley heavy	90
Cotton Valley light	*11,350
De Soto and Red River	1,415
Elm Grove	355
Haynesville	3,120
Holly	80
Homer	2,605
Lisbon	10,865
Pleasant Hill	100
Rodessa	35,345
Sarepta-Cartersville	†550
Sligo	1,705
Sugar Creek	330
Urania	2,850
Zwolle	2,250
Total	80,790

SOUTH ARKANSAS

Buckner	985
Champagnolle	1,045
El Dorado	1,850
Lisbon	270
Miller County	385
Nevada	665
Rodessa	7,385
Schuler	24,125
Smackover light	2,030
Smackover heavy	16,105
Stephens	530
Troy	1,190
Urbana	1,140
Village	500
Total	58,205

Texas side of Rodessa field, 30,765 bbls. daily.
*4,375 bbls. is distillate. †240 bbls. is distillate.

Support Alabama Amendment Against Tax Diversion

D. H. Bohler, chairman of the Alabama Petroleum Industries Committee, announces that his organization will lend active cooperation to the Alabama Motorists Association in the campaign to inform the public on the merits of the constitutional amendment requiring that all state special motor vehicle tax revenues be used exclusively for road, street and bridge purposes. This amendment will be known as Amendment No. 1 on the November 8 ballot.

California Field Report

By
L. P. STOCKMAN

Possible Deeper Production Indicated in Rio Bravo Area

LOS ANGELES, Calif., July 25.—The most important development in California during the week from a drilling standpoint was discovery of a new and probably productive zone by Superior Oil Co. in the Rio Bravo field, Kern County, beneath the present productive Rio Bravo horizon. California's reserves of crude will be greatly increased if commercial production is developed as this lower zone should have more kick and a larger recovery. At present Union Oil Co. appears to control the apex of the structure because the highest point at which the upper zone has been cored is in section 34-28-25 on property leased by Union from Kern County Land Co. Superior Oil Co.'s discovery was made in No. 1 Helbling, section 1-29-25, in the extreme southeastern end of the field, and while its productivity will not be determined for 10 days indications point to probability it will be found commercially productive. No. 1 Helbling is bottomed at 12,264 feet and had cored 45 feet of good-looking oil sand with the bit still in the possible pay when drilling was suspended preparatory to landing a string of casing.

The present productive Rio Bravo zone was absent in No. 1 Helbling as a gray sand was logged where the pay should have been found. Failure to log the Rio Bravo zone indicated that faulting has exerted an important influence on structural conditions because No. 1 Helbling is only relatively a few hundred feet from a producing well. Due to the possibility of faulting the areal extent of this new zone will not be determined until after additional drilling.

Shortly after discovery of the Rio Bravo field by Union Oil Co., engineers were of the opinion the company had found the equivalent of the Vedder zone previously found highly productive in the Mount Poso field of Kern County. Earl B. Noble, chief geologist of Union Oil Co., recommended, however, that the zone found productive will be designated as the Rio Bravo pending later developments and the present productive horizon has been designated the Rio Bravo zone. Mr. Noble did not state definitely that the Rio Bravo zone is not the equivalent of the Vedder zone but merely requested final judgment be reserved in view of the disparity in the quality of crude produced, along with other pertinent factors. Union Oil Co. completed another excellent producer in this field during the week when No. 3-34 Kern County Land, section 34-28-25, was brought in flowing 3,580 bbls. of 39.8 gravity and 4,000,000 feet of gas from the Rio Bravo zone at 11,470 feet. This well was finished flowing through a 33/64-inch bean and showed 1,650 pounds on the tubing and 1,975 pounds pressure on the casing. In conformity with curtailment production was cut back to 525 bbls. per day by reducing the tubing bean to 8/64-inch. In addition to the oil the well is flowing 715,000 feet of gas, which is the equivalent of a gas-oil ratio of approximately 1,360 feet per barrel. Top of the Rio Bravo zone was logged at 11,215 feet and the hole was finished with 307 feet of 4¾-inch liner including 247 feet of perforated landed at 11,468 feet and a string of 2½-inch tubing.

Torrance

Seven new wells and former upper zone producers that have been deepened to the lower zone placed the Torrance field at the top of the completion list during the week from a numerical standpoint although three new wells in a like number of fields showed a higher initial daily production than the aggregate initial of all wells added in the Torrance field. Of the seven wells put on production in the Torrance field, four were new wells drilled and three were former upper zone producers deepened. The largest completion was Kovell Oil Co. No. 1 Lomita, finished flowing 630 bbls. of 27.3 gravity cutting 4 per cent from 5,011 feet. The crew transferred to No. 2 Lomita. No. 11 Kirk of Andrews & Mitchell was completed flowing 620 bbls. of 26.9 gravity per day through a 65/64-inch bean along with 475,000 feet of gas from 4,969 feet. This was a recompletion after being deepened and was finished with a string of 6⅝-inch carrying 51 feet of 100-mesh landed on bottom. Tubing pressure is 175 pounds and casing pressure 550 pounds. No. 2 Moore of McDonald & Burns was finished with 1,595 feet of 5¾-inch including 94 feet of perforated and brought in flowing 270 bbls. of 27.3 gravity from the lower zone at 5,002 feet.

No. 1 Mitchell of Morton & Elder was completed flowing 368 bbls. of 26.9 gravity from 4,997 feet after the hole had been finished with 110 feet of 5¾-inch liner including 100 feet of perforated. Packard Oil Co. No. 1 Lomita, a recompletion, came in flowing 515 bbls. of 26.8 gravity through a 30/64-inch bean from 4,982 feet. The company's No. 2 should be ready for a production test within 10 days and No. 3 should pick up the pay within a fortnight. No. 1 Torrance of Hujo Oil Co. has been completed flowing 260 bbls. of 27.3 gravity through a 22/64-inch bean under a tubing pressure of 200 pounds and a casing pressure of 620 pounds from 4,930 feet. This well, finished with 82 feet of 4¾-inch liner including 52 feet of perforated, is yielding 180,000 feet of gas along with the crude. No. 2 Petitfils of Zenith Oil Co. failed to come up to expectations as it was good for only 55 bbls. of 25.6 gravity from 3,550 feet. It was finished in the upper zone and failed to show large production notwithstanding there is a total of 400 feet of perforations open to the sand.

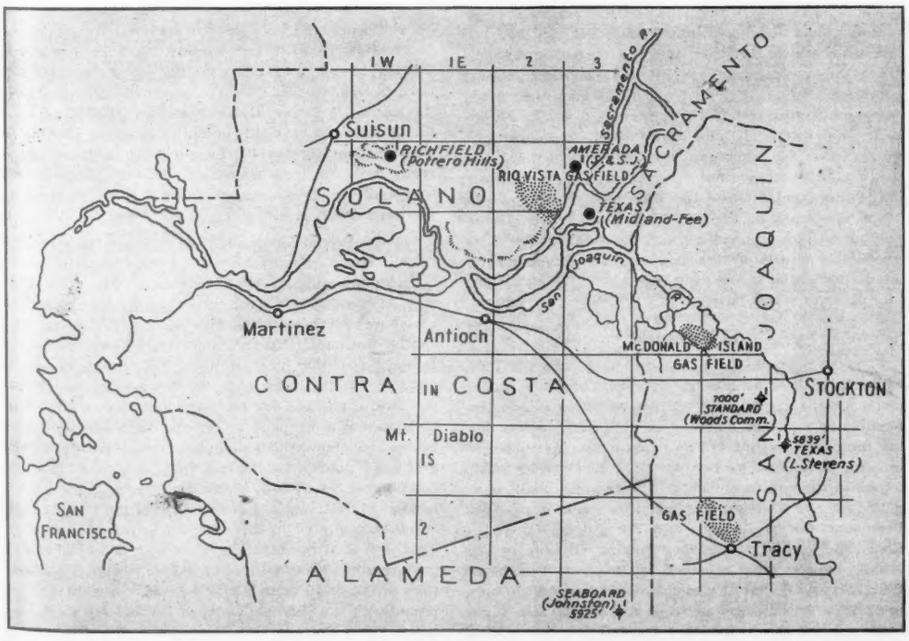
Wilmington

Four new wells were put on production in the Wilmington field and while they showed an aggregate initial daily production of 6,223 bbls. the list was smaller than anticipated. At least three large wells should be completed before the close of the week. No. 3 Harbor of Republic Petroleum Co. should be good for better than 4,000 bbls. per day as Nos. 1 and 2 on this lease showed initials of 5,465 bbls. and 5,580 bbls., respectively, upon completion last week. Union Pacific Railroad Co. headed the completion list by finishing No. 84 Offset flowing 4,950 bbls. of 25.8 gravity from the Terminal zone at 4,015 feet. This well was finished with a 6⅝-inch liner which carried perforations at 3,457-552 feet, 3,567-642 feet, 3,757-806 feet, 3,821-917 feet and at 3,937-4,006 feet and was cemented through perforations at 3,455 feet and at 3,755 feet.

Wilgate Oil Co. failed to develop large production in No. 1 Wilmington in the Ford zone and this well, which would have greatly stimulated deepening operations, has been listed flowing 205 bbls. of 27.5 gravity through an 18/64-inch bean per day. This deep zone well was carried to 5,660 feet and plugged back to 5,453 feet because of bottom water and the hole finished with 2,686 feet of 5¾-inch liner including 270 feet of 50-mesh screen landed at 5,453 feet. The cementing point was through perforations at 5,180 feet. There is a possibility some additional work will be undertaken. Bankline Oil Co. added another well to its producers by completing No. 7 Union Pacific flowing 308 bbls. of 17.7 gravity daily from the Ranger zone with bottom of the hole at 2,966 feet. This well, which was brought in flowing through an 18/64-inch bean under a tubing pressure of 205 pounds and a casing pressure of 350 pounds, was finished with 411 feet of 6⅝-inch liner including 400 feet of 80-mesh landed at 2,961 feet and 2,552 feet of 2½-inch tubing. Richfield Oil Corp., which has developed substantial production in this field, has completed No. 5 Pacific Dock flowing 760 bbls. of 19.8 gravity from 3,644 feet through a 1-inch bean.

Litigation and Curtailment

In a movement to harmonize the various interests involved in the tidelands at Wilmington, a newly created board of the state designated as the State Land



Richfield Oil Corp., a subsidiary of Consolidated Oil Co., has discovered a new dry gas field in Solano County, California, a few miles southeast of Suisun and east of the Rio Vista gas field

Commission and consisting of H. B. Riley, state controller; A. E. Stockburger, director of finance, and Lieutenant Governor Hatfield, will hold a round table discussion with the city council and harbor commission of Long Beach in an effort to reach a compromise whereby the tangle may be smoothed out. The state contends it holds title to all tidelands including those deeded to the city of Long Beach for harbor purposes while the municipality contends it has the right to lease its tidelands for development. A recent decision held the city can legally lease the tidelands for development but can not drill itself. This decision did not decide title to the tidelands as this was not an issue. The move to harmonize the tideland issue is being made to forestall any move by the federal government to claim title as was attempted at the late session of congress.

Practically all operators in the Wilmington field have agreed to reduce the maximum production of all wells from 600 bbls. each per day to 500 bbls. daily. This represents a reduction of 100 bbls. per well daily and when accomplished will cut production about 6,500 bbls. daily. Most of the wells in the Long Beach section were cut back several days ago and the recent completions will be down to the maximum within another few days. The field committee found it could not sustain an allowable of 600 bbls. per day for Wilmington wells when those in the Rio Bravo field were being cut to 500 bbls. per day each and similar curtailment invoked in the Greeley, Ten Section, Canal, Wasco and other fields in San Joaquin Basin.

At present operators in the Wilmington field are attempting to secure a revision of county taxes and request that the assessed valuation of several properties be reduced from $3,807,670 to $1,505,988. Bankline Oil Co., with properties assessed at $1,435,350, has asked for a reduction to $940,800, while Westgate Greenland Oil Co. has asked for a revision from $680,080 to $137,948. The latter company has only about 10 acres and the city of Long Beach gets a royalty of 50 per cent. Supreme Oil Co., with an assessed valuation of $268,845, asks a reduction to $178,000 and Long Beach Oil Co., with an assessed valuation of $723,425, asks a reduction to $250,000. Twelve wells are involved. The Board of Supervisors ordered the companies to submit briefs and suspended judgment.

Montebello

Two wells were completed in the western end of the Montebello field but both will require further work. Brookline Oil Co. made an open hole flow test on No. 1 Drake Community, which flowed 820 bbls. of 38.3 gravity per day from the sixth zone at 6,444 feet. After determining that commercial production could be expected the company killed the well and began running in a liner. Herley Kelly, Inc., secured good production from the sixth zone when No. 1 Burke was given a production test as the well, flowing through the tester, produced at the rate of 2,250 bbls. from 6,302 feet. The company has already run liner and tubing and should have the well on production within a few days. Standard Oil Co. found the fifth zone wet in No. 1 McDonald and the hole is being carried to the sixth zone of Miocene age. The fifth zone is in lower Pliocene. Union Oil Co. is making preparations to complete No. 2 Howard & Smith in the fifth zone and should have it ready for a production test within a few days. St. Helens Petroleum Co. should have two additional potential producers ready for tests before the close of another week and both should show large production.

Newhall

Barnsdall Oil Co. completed an excellent well in the Newhall field of Los Angeles Basin when No. 3 Rancho San Francisco in section 26-4-17 was brought in flowing 1,769 bbls. of 35-5 gravity from 7,264 feet after the hole had been finished with 986 feet of 5¾-inch liner including 793 feet of 100-mesh screen and 7,000 feet of 2½-inch tubing. In addition the well made 3,000,000 feet of gas which appears to carry an excellent saturation. Late in the week production was still climbing when the company began reducing production in conformity with curtailment. This well was brought in flowing through a 26/64-inch bean and showed a tubing pressure of 850 pounds and a casing pressure of 250 pounds indicating that even with a production of 1,769 bbls. per day it had not yet built up. Subsequent to completion the tubing bean was reduced to 18/64-inch and pressure built up to 1,400 pounds on the tubing and 2,125 pounds on the casing. It is the intention to bean production back to about 600 bbls. per day. No. 3 Rancho San Francisco has a penetration of 960 feet of formation and according to R. A. Broomfield the bit was still in the pay when drilling operations were concluded for the production test. This is the best well finished in this field as Barnsdall's first two wells did not take as much penetration. Barnsdall Oil Co. controls what is believed to be the entire amount of productive acreage as no other operator can drill within 1 mile. It is the opinion of geologists familiar with this section that these zones, consisting of oil sand and shale, can be expected to a depth of at least 10,000 feet or about 3,000 feet below the bottom of Barnsdall's latest completion.

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	July 15		July 8			
Intercoastal-domestic:	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	72,805	10,401	.....	.....	345,555	.....
Diesel and gas oil	.....	.....	.....	.....	.....	176,726
Gasoline	60,780	8,683	204,920	29,274	1,844,903	1,957,692
Kerosene	.....	.....	.....	.....	199,453	250,642
Foreign exports:						
Crude oil	527,966	75,424	313,679	44,811	13,377,184	7,349,343
Fuel oil	133,174	19,025	297,485	42,498	4,892,318	8,038,257
Diesel and gas oil	176,031	25,147	129,823	18,546	3,237,239	3,946,689
Gasoline	367,696	52,528	73,227	10,461	4,035,166	4,062,140
Kerosene	.....	.....	19,909	2,844	598,020	1,201,925
Lubricants	32,806	4,687	.....	.....	48,370	.....
Other unfinished oil	.....	.....	.....	.....	.....	777,652
Coastwise-domestic:						
Crude oil	377,286	53,898	318,584	45,512	6,318,696	1,941,409
Fuel oil	73,414	10,488	236,566	33,795	5,725,324	8,066,471
Diesel and gas oil	.....	.....	6,629	947	898,534	1,183,240
Gasoline	298,607	42,658	360,326	51,475	8,301,623	7,769,493
Kerosene	.....	.....	4,379	626	145,113	189,397

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic:						
Diesel and gas oil	.....	.....	.....	.....	178,662	152,932
Gasoline	.....	.....	.....	.....	9,499	25,778
Asphalt	.....	.....	.....	.....	346,862	205,319
Lubricants	.....	.....	.....	.....	13,665	12,857
Foreign exports:						
Crude oil	134,049	19,150	.....	.....	3,014,005	1,538,082
Fuel oil	84,475	12,068	.....	.....	1,145,421	1,126,311
Diesel and gas oil	77,243	11,035	.....	.....	1,233,633	1,639,143
Gasoline	.....	.....	.....	.....	3,152,549	2,822,563
Kerosene	5,955	851	.....	.....	455,558	497,267
Asphalt	.....	.....	.....	.....	56,258	.....
Lubricants	40,678	5,811	.....	.....	242,960	307,142
Coastwise-domestic:						
Fuel oil	131,286	18,755	120,215	17,174	3,489,914	3,570,360
Diesel and gas oil	32,411	4,630	18,637	2,662	821,869	532,686
Gasoline	310,408	44,344	294,168	42,024	4,024,183	2,517,482
Kerosene	.....	.....	19,230	2,747	300,839	123,056

Rosecrans

Union Oil Co. field department has closed a busy week during which more than 10,000 bbls. of new production was added as a result of two new wells in the Rosecrans field, one in the Rio Bravo, and another in the Santa Maria Valley field. At Rosecrans, Union Oil Co. completed Nos. 20 and 23 Rosecrans flowing 1,350 bbls. of 34.8 gravity and 1,675 bbls. of 34.7 gravity, respectively. No. 21 Rosecrans is scheduled for completion July 30 and No. 22 Rosecrans is scheduled for completion August 5 so Union will probably increase its potential production about 15,000 bbls. per day between now and August 10. This may be surpassed because the company has another potential producer nearing completion in the Rio Bravo field and another ready for a production test in the western end of the Montebello field where operators are developing deeper production. No. 20 Rosecrans was bottomed at 7,855 feet and No. 23 Rosecrans was finished at 7,770 feet. Barnsdall's next completion in the Rosecrans field should be No. 9 Rosecrans as the bit is below 7,250 feet. Barnsdall and Union control by far the larger amount of productive acreage in this field and have developed substantial potential in the deep O'Dea zone which the former discovered last year.

El Segundo

The El Segundo field bounded back into the limelight again after an absence of several months as the result of the completion of two excellent producers. Production has been showing an abnormal decline during the past year and will probably never again become a factor of importance because all wells have been bottomed in the basement Schist. The two new wells completed in the El Segundo field this week were Apex Petroleum Co. No. 3 Elsie and Burnoel Oil Co. No. 1 Elsie. The former was finished flowing 872 bbls. of 23.8 gravity cutting 4 per cent and 740,000 feet of gas from 7,380 feet and the latter was completed flowing 570 bbls. of 24.3 gravity cutting 5 per cent and 450,000 feet of gas daily from 7,336 feet. Sovereign Oil Co. has started drilling operations on No. 2 Community in this field and is rigging up rotary drilling equipment in No. 1 Coppinger. Both are in the town lot section northwest of the four corners.

San Joaquin Basin

Belridge Oil Co., discoverer of Temblor and Eocene production in the North Belridge field of Kern County, has completed No. 5 in section 27-27-20 flowing 1,925 bbls. of 32.2 gravity and 4,680,000 feet of gas per day through a 1½-inch bean from the Wagonwheel zone at 8,470 feet. This well, one of three drilling in the North Belridge field, was completed with 316 feet of 4¾-inch liner including 276 feet of perforated landed on bottom and 8,447 feet of 2½-inch tubing. Drilling operations have shown a substantial decline in this field during the past month or two and it begins to look like Belridge Oil Co. is going to slow down development for at least three months. Out in the west front section of the Kern River field, Italo Petroleum Co. has recompleted No. 34 Cauley in section 16-28-27 pumping 116 bbls. of 15.3 gravity after deepening the hole from 2,885 feet to 2,905 feet. In the Midway-Sunset field American Naphtha Oil Co. completed No. 1 in section 15-32-23 pumping 22 bbls. of 19.3 gravity oil per day after the hole had been deepened from 2,407 feet to 2,625 feet.

In the Fruitvale field of Kern County, Western Gulf Oil Co. completed another excellent well in section 14-29-27 when No. 37-B Kern County Land was brought in flowing 274 bbls. of 17.7 gravity through a 32/64-inch bean from 3,001 feet. This company has concluded drilling on No. 4 Sawyer-Reed in section 27-29-27 at 3,837 feet and should have this potential producer tanking oil within a few days as 425 feet of 6⅝-inch liner has already been run in. Meridian Oil Co. should also have a well ready for a test within a few days as No. 4 fee in section 23-29-27 is in the pay at 3,055 feet.

In the Round Mountain field of Kern County, Shell Oil Co. has completed No. 1-3 Oicese Estate in section 16-28-29 pumping 71 bbls. of 15.6 gravity from 1,714 feet. This well was a long time cleaning up and getting under way and production may show a further increase. In the Kettleman North Dome field, Kettleman North Dome Association has completed No. 58-16-Q in section 16-22-18 flowing 4,295 bbls. of 37.2 gravity and 2,980,000 feet of gas per day from the Temblor at 8,100 feet. This well was brought in flowing through two 2-inch beans and showed 230 pounds pressure on the tubing and 2,980 pounds on the casing. Kenda's last previous completion, No. 67-20-J, finished last week in the Avenal zone at 11,041 feet, is showing some of the highest pressures encountered in the state up to the present time. This well is at present beaned back to 665 bbls. of 48.2 gravity and 13,536,000 feet of gas daily shows a tubing pressure of 2,750 pounds and a casing pressure of 3,080 pounds. Up in Solano County, Richfield Oil Corp. has listed No. 1 Potrero Hills, in section 10-4-1, as a commercial well flowing 15,000,000 feet of gas per day from 3,373 feet. This well is believed to have discovered a new dry gas field but it will require further work before its real importance is indicated.

Texas and Louisiana Gulf

By
NEIL WILLIAMS

Extension at Cotton Lake Is Indicated by Casey Test

HOUSTON, Tex., July 25.—The Gulf Coast went through the past week without any new fields or new sands being opened or indicated, an unusual situation for this district. However, in several fields important extensions of present producing horizons were brought to light and are now in the making. Drilling continued active, particularly in such fields as Fairbanks, Friendswood, Hardin, Eureka, Jennings and others, where intensive development programs are under way. Several additional important wildcats also were started.

At Cotton Lake, Chambers County, a 1,200-foot westward extension is in prospect as a result of a favorable drill stem test in J. R. Turnbull and associates No. 1 Casey. In a test at 6,529-35 feet in the upper pay section of the field 36 stands of 32-gravity pipe line oil were recovered. The hole has been deepened to the lower pay section where even better saturation is reported. This test is being drilled on a farm out from Gem Oil Co. and Salt Dome Oil Corp. The nearest production is Humble Oil & Refining Co. No. 2 Casey.

Drilling also was started at Cotton Lake for another extension test, this being Gillispie-Colcord No. 1 Lawrence, Solomon Barrow Survey, 1,252 feet west of Humble Oil & Refining Co. No. 1-B Lawrence. This is on a farm out from the latter company. It is drilling below 1,500 feet.

In the Mauritz area, Jackson County, J. K. Dorrance No. 1 Guenthin, O. S. York Survey, about a mile southwest of a producing well drilled by Shell Petroleum Corp. several years ago, picked up oil showings in the Frio below 5,500 feet. The test cored from 5,617-25 feet and 5,567-87 feet. Additional cores are to be taken. The Shell well is producing around 5,700 feet.

Fairbanks Field

Union Producing Co. still has been unable to make a satisfactory completion in its No. 1 Goodykoontz, 1½ miles northeast of production of the Fairbanks field, Harris County. A fifth attempt to complete the well was made late in the week after reperforating casing at 7,213-17 feet with 14 shots. For a time it appeared as if the test would be a success when the well started off at the rate of 22 bbls. of 37.6-gravity pipe line oil an hour, flowing through an 11/64-inch choke with tubing pressure 1,100 pounds and casing pressure 700 pounds. However, as in previous tests, the well soon started making salt water in considerable volume, and again has been shut in. Previous perforations in the casing were made at 7,872-80 feet, 7,444-53 feet, 7,230-33 feet and 7,222-25 feet. The sand in this well is approximately 500 feet below the regular producing horizon of the field at 6,800 feet.

W. V. Bowles has started drilling in his No. 1 Frances Galloway, Mary McFarland Survey, 4,000 feet north of the Fairbanks production. This promises to be an interesting test in view of the showings encountered by the Union Producing Co.'s well. In the field, three wells were completed, and as the week ended three others either were testing or preparing to test. There now are more than 40 wells in the field. Five new locations were reported the past week.

Salt Dome Oil Corp. and Standard Oil Co. of Texas No. 1 State-Tract 94, Cedar Point field, in Galveston Bay, which missed the producing sand of the field at 6,200 feet after going to a total depth of 6,400 feet, has been plugged back, and will drill a new hole to a Miocene sand at 4,420-60 feet which was passed up by the well. This well is north and slightly west of the field, and so far as the 6,200-foot regular horizon is concerned it apparently defines the field in that direction. This is the second test north of production which has missed the pay, the other being a well recently drilled by Humble Oil & Refining Co.

Hardin Field

Atlantic Refining Co. has extended production of the Hardin field, Liberty County, 500 feet southward by completion of its No. 2 Richardson. With casing perforated at 7,641-48 feet, this well flowed initially 21 bbls. an hour through a quarter-inch choke. Two other completions were reported from that field, in which there now are more than 12 rigs running. Twelve additional locations were made the past week. With the new completions there now are nearly 70 wells in the field. Texas Co. No. 1 Page, an interesting major extension test west of the field, late in the week was drilling below 5,000 feet.

Among important new wildcat locations was one by Henry C. Adams for No. 1 Sury, H.&T.C. Survey, section 48, 2 miles south of Needville, Fort Bend County. Contract has been let to Harrison & Dillard, who are rigging up preparatory to spudding this week. This contract calls for 6,500 feet. Seven deep wildcats have been drilled in the general Needville area over seven or eight years. The present test is the second for this operator, the first being No. 1 Frank Jurca, a mile north of Needville. Needville is one of the older torsion balance prospects, and although nothing more than a few showings have been encountered, the area continues to be regarded favorably, with acreage held by various major companies as well as independents.

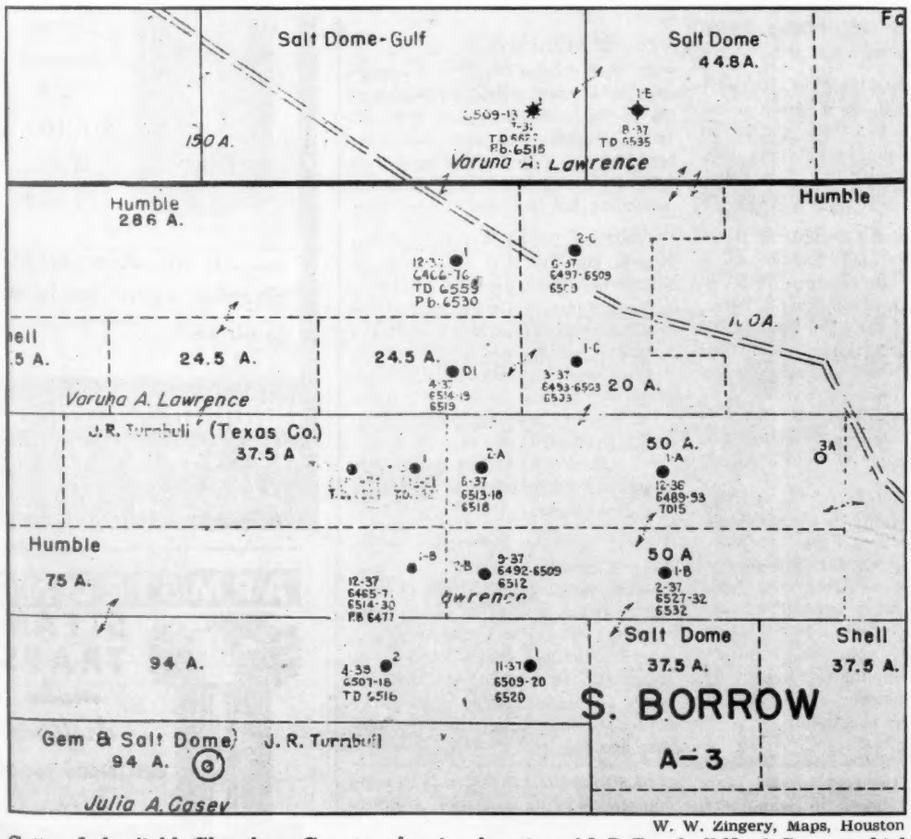
Another deep test is being started on the old Bryan Mound salt dome, at Freeport, Brazoria County, where J. S. Frabriguze and associates have made location for No. 1 Freeport Sulphur Co. Henry DeArman, who has the contract for a 7,500-foot test, is rigging up, and drilling will be under way this week. The location is about 2½ miles east of the center of the dome on a 2,300-acre block. Bryan Mound, one of the oldest known salt domes on the Gulf Coast, never has been productive although a number of deep tests have been drilled around its flanks. Texas Co. is drilling its fifth test on the northwest flank of the dome, this being down around 4,000 feet.

Old Orange Field

General Petroleum Co. has completed No. 2 State, in Cow Bayou, northwest flank of the old Orange field, flowed initially around 10 bbls. an hour through a quarter-inch choke from perforations in casing at 5,990-6,018 feet. Its pressure gauged 1,810 pounds on the tubing and 1,900 pounds on casing. Total depth of the hole is 6,035 feet, plugged back to 6,018 feet.

At Eureka, on the west edge of Houston, Harris County, Tide Water Associated Oil Co. has completed its first well, No. 1 Laura Lachner, having a potential of 556 bbls. daily through a quarter-inch choke, with 800 pounds on tubing and 950 pounds on casing. Casing was perforated at 7,755-67 feet. Rig is being moved to No. 2 Laura Lachner, 1,216 feet west of No. 1. Two other wells were in process of completion over the week-end, including Jack Frazier No. 2 Vollmer Newmann, and Houston Oil Co. No. 1-D Lachner.

(Continued on Page 230)

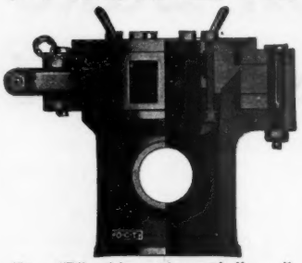


W. W. Zingery, Maps, Houston

Cotton Lake field, Chambers County, showing location of J. R. Turnbull No. 1 Casey, which promises an important extension of production

PREVENT STUCK PIPE
While Preventing Blowouts!

Include an O-C-T Preventer in your drilling control hook-up as a safeguard against stuck pipe. With the packoff latched around the pipe, you can rotate for days and move pipe up and down to prevent sticking while killing the well.



Type "D" with regular packoff, available flanged or screwed, with or without outlets.

Type "D" with stripper rubber.

OIL CENTER TOOL CO.
O-C-T
HOUSTON, TEXAS, U.S.A.
CABLE ADDRESS "OCANTOL"
Sold Through Supply Stores

"PRE-SOLD"
Wall
MANILA
OIL FIELD CORDAGE
stands the gaff!

Complete stocks are carried in both mid-continent and gulf coast fields.

Wall Rope Works, *Inc.*
2000 Nance Street,
Houston, Texas
Telephone: Cap. 0244

CONTROLLED VERTICAL DRILLING
TOTCO
DRIFT RECORDER
ACCURATE • DEPENDABLE
FAST • SAFE • ECONOMICAL

Pumping costs in crooked wells are materially increased because of frequent rod and tubing repairs which lessen production. TOTCO gives the information for the Controlled Vertical Drilling methods which keep a well straight.

TOTCO RENTALS AND SERVICE
Carson Machine and Supply Co.
Houston Oil Field Material Co.
R. D. Wallace, Casper, Wyoming
EXPORT: Lucey Export Corporation

Among the Drilling

ALLEN & MORRIS of San Antonio, Tex., hope to have the distinction of opening a new field at Woodsboro, Refugio County, where they have been testing a 5,400-foot sand showing oil in a wildcat drilled for I. J. Allen. This wildcat, No. 2 Rooke, showed salt water with the oil, in a test with casing perforated at 5,428-32 feet, but the casing is being reperforated higher in the section for another test. These contractors are also completing a well for Seaboard Oil Co. in the Luby area, Nueces County, where the latter's No. 10 Shaffer is drilling plug of 7-inch casing at 5,064 feet. They also have two other rigs running for Seaboard in the same area. At Refugio, another of their rigs is completing a well, W. R. R. Oil Co. No. 2 Mission River. In the Driscoll field, Nueces County, they are drilling Texas Co. No. 1 Richardson at Turkey Creek, and, in the same county, Rutherford Oil Corp. No. 2 McKenzie.

HARRISON & DILLARD of Houston, Tex., have a contract to drill a 6,500-foot wildcat two miles south of Needville, Fort Bend County, Gulf Coast, for Henry C. Adams. The rig is being moved in and drilling should begin shortly.

HENRY DeARMAN of Houston, Tex., is rigging up for a 7,500-foot test on the east side of the old Bryan Mound salt dome, at Freeport, Brazoria County, Gulf Coast. J. S. Fabriguze and associates are the operators.

SMITH & McDANNALD of Houston, Tex., have made location for a wildcat in the northeastern corner of Jim Wells County, Southwest Texas, 5 miles east of the Sandia field. The test, No. 1 Rooney, is on a block which Pure Oil Co. farms out from Conservative Oil Co. Location is in the J. H. Gallagher subdivision of the Casa Blanca Grant, and will go to 6,000 feet.

NICKLOS DRILLING CO. of Houston, Tex., is moving its rig which has been on Continental Oil Co. No. 1 Moss, Lockport field, Calcasieu Parish, La., to one of its own wells, No. 4 Moss, in the same field. The latter well, which is on a two-acre tract obtained recently from the Moss heirs after Union Sulphur Co. gave it up, will be worked over in an effort to place it back on production.

GEORGE ECHOLS of Houston, Tex., who in the past several years has been very successful as an operator in his own right, has prospects of adding another new field to his list. A wildcat No. 1 Power, William Lavery, Goliad County, which he is drilling jointly with Continental Oil Co., encountered high gas pressures while coring 18 inches in the top of a sand at a total depth of 4,665 feet, and tried to blow out. The well, however, was held under control and now is drilling ahead. Mr. Echols, however, had a dry hole in his No. 1 Balzen, a wildcat drilled west of Orange Grove, Jim Wells County. This test was abandoned at 5,259 feet.

RED IRON DRILLING CO. of Shreveport is beginning two wells in the Cass County section of Rodessa, which has recently been inactive. They are drilling below surface casing on the Harry Hanbury No. 1 H. B. Echols, and are rigging up on Texas Co. No. 2 Chatten. A third Red Iron rig is drilling in the Lisbon field of Claiborne Parish, on Sells Petroleum Co. No. 1-B C. L. S. Patten, which is below 2,300 feet.

JONES & JONES, drilling contractors, have begun an east offset test to the recently completed Magnolia field discovery in Columbia County, Ark. The well is being drilled for Petroleum Finance Co., on the Baker lease.

CROW DRILLING CO. of Shreveport, is at critical depth in two deep edge tests being drilled for Standard Oil Co. of Louisiana in the Buckner field of Columbia and Lafayette counties. No. 3 McKean is in lime at 5,783 feet, and No. 1 Warren is approaching the Big lime at 6,800 feet.

THOMAS DRILLING CO. of San Angelo, Tex., and E. G. Van Patten, of Dallas, Tex., have given Reagan County, West Texas, its first wildcat test in several months. It will be their No. 1 John O. Carr, section 4, M. N. Hines Survey, four miles north of Big Lake and 13 miles east of the Big Lake field. The test is on a 1,280-acre farm out from Sun Oil Co. and drilling contract calls for 3,000 feet unless production or sulfur water is found at a shallower depth.

L. T. BURNS, of Wichita Falls, Tex., is moving in materials for a 5,000-foot wildcat in Clay County, North Texas, a quarter mile out of the southeast corner of the St. Augustine University Lands Survey, abstract 403. It will be on the Lyles lands and southeast of a dry hole drilled by the same operator some time ago.

OLSON DRILLING CO. is nearing completion of its important Andrews County, West Texas, wildcat five miles west of the south end of the Fuhrman pool. It was re-treated with 2,000 gallons of acid in the lower pay section from 4,423-44 feet and last reported swabbing at the rate of 20 bbls. of oil per hour.

OILWELL DRILLING CO., of Dallas, Tex., has completed two more wells on its holdings in Ector County, West Texas. No. 3-A Connell in the Jordan Pool made 199 bbls. per day to give the area a quarter mile south ex-

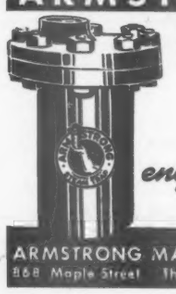
STANCLIFF
PATENTED
Ribbed
SCREEN

when wrapped with STAINLESS STEEL WIRE

. . . is not subject to any corrosive agents yet found in oil wells.

HOWARD SMITH CO.
1201 SAWYER STREET
Houston, Texas

ARMSTRONG



STEAM TRAPS
make drilling engines work better!

ARMSTRONG MACHINE WORKS
868 Maple Street Three Rivers, Michigan

Contractors

tension, while No. 7-A Cowden, in the Harper pool, gauged 1,412 bbls. per day. No. 1-B Connell, also in the Jordan pool, is nearing completion after being acidized with 2,000 feet of oil in the hole. This test will effect a one-half mile southwest extension.

HOWELL DRILLING CO. is drilling two important wildcats in East Central Texas. One is Lignite Petroleum Co. No. 1 Tidemore, about seven miles north of the Cayuga pool and in the Peter Tumlinson Survey of Henderson County. It was last reported coring for the Woodbine sand after topping the Austin Chalk at 3,191 feet. The other test is Hi-Point Oil Co. No. 1 K. H. White, a mile and a half southeast outpost to the Flag Lake field of northwestern Henderson County.

DAVIDSON DRILLING CO., of Fort Worth, Tex., is drilling plug from 7-inch casing cemented on bottom at 4,290 feet in an important wildcat in the southeastern part of Hockley County, West Texas. It is Skelly Oil Company No. 1 Ellwood Estate, in the Howard County School Lands. It was credited with topping the brown lime high against World Oil Co. No. 1 Ellwood, an old dry hole five miles southeast.

CALIFORNIA DRILLING & SUPPLY CO., owned by Harold J. Henry of Bakersfield, completed a well in the Kern Front field of Kern County, California, with an unusual procedure.

Most California wells are completed with rather small liners, but an 8⅝-inch liner was installed in the new Seven Spot well. Its size, together with the fact that its slots are more closely spaced than usual, will result in greater efficiency in producing the heavy crude of the field. it is believed. Thirty-two rows of 140-mesh 2-inch slots are placed 1 inch apart. Forty-six feet of the liner is perforated in this manner.

Cores from the well showed 51 feet of well-saturated oil sand between 1,202 feet and 1,253 feet. Trouble was encountered in running the 10¾-inch casing to shut off water above the sand, and this string had to be cemented at 1,080 feet. It was therefore necessary to use a blank section of liner to extend from the top of the sand up into the shoe of the water string.

Before running the liner, the hole below the casing shoe was scraped out to a diamenter of 11 inches with a wall scraper. The liner was made up with a cement basket and a whirler cementing collar at the top of the perforated section. The cementing collar was equipped with a fluid by-pass in the bottom baffle, because it was believed that without this feature the displacement of fluid below the liner would be very slow, and would greatly retard the lowering of the assembled liner into the well.

The 200-foot liner was set on bottom at 1,253 feet, and the slurry to cement behind the blank section was introduced through a string of tubing. An 8⅝-inch swab rubber was used at the lower end of the tubing to retain the slurry. Sufficient cement was used to surround the liner well up into the casing string.

Men responsible for discovery of oil in No. 1 Ellerbee, new Caddo Parish, Louisiana, strike of R. E. Allison, Shreveport oil man and drilling contractor: A. G. McNaughton, driller; L. C. Bates, drilling superintendent; Emmett Heath, Gray Tool Co.; Clark Griffith; Travis Belew; Floyd Burson; R. E. Allison; Weyman Brown, and Roy Walling.

Save Money, Labor, Time

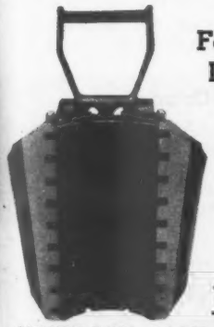
with a

BREWSTER

***Wire-Line* CORE BARREL**

You retrieve your core through the drill stem on a wire line in 30 or 40 minutes. Regular model takes 42″ core, other models take cores up to 8 feet in length. Drag bit head (2 or 3 blade) and core cutter head dressed with Tungsten Carbide Hard Metal. Buy one of these barrels outright and provide your rig with the most economical and satisfactory coring method known. Prices on request.

The BREWSTER Co., Inc.
Phone 2-3181 Shreveport, La.
Longview . New Iberia . Houma . Lake Charles . Rodessa



For Your DRILL PIPE'S SAKE

USE

KINZBACH-AJAX SLIPS!

● They reduce rotary slip costs since, by changing inserts, several pipe sizes can be handled with one set of segments. They assure even distribution of load over entire gripping surface as each insert is individually anchored to slip segment. These and many other advantages are described in descriptive literature, gladly sent upon request.

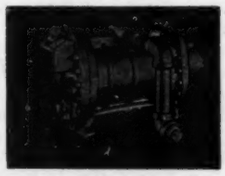
Available Through Leading Supply Stores

KINZBACH TOOL CO., INC.
HOUSTON, TEXAS.

BASSLER LIQUID METERS

Positive piston displacement type for accurately measuring all petroleum oils. Automatically correct for temperature differences. Furnish direct readings in any desired unit of measure. Bassler Liquid Meters simplify well gauging, reduce excess tankage, and provide positive individual well records and true proportionate sample of production. Used by U. S. Government and many major oil companies. Manufactured for all capacities and pressures.

American Liquid Meter Company
P. O. Box 87, Alhambra, California
Mid-Continent Distributors:
Hanlon-Waters, Inc., Tulsa, Okla.



Standco
NO-SMOKE
STANDCO BRAKE LINING
stands the gaff and gets the job done without scoring brake rims. See page 1940, Composite Catalog.
STANDARD BRAKE LINING CO.

H. C. SMITH ROCK BITS

INSURE INCREASED SPEED AND ECONOMY

H. C. SMITH ROCK BIT
available in sizes 5⅝″ up to and including 13″

Send for Folder or see Composite Catalog

H C Smith Oil Tool Co.
OF TEXAS
714 Hamilton Bldg., Wichita Falls, Texas
CLINT WALKER, Division Manager
Illinois Service:
Brown-Walters Co., Centralia, Illinois

West, Central and Panhandle Texas

By
D. H. STORMONT

Three New Wildcats Staked; Jones and Brown New Pools

FORT WORTH, Tex., July 25.—The staking of three new wildcats of major importance in West Texas and the possibility of new pools in Jones and Brown counties of West Central Texas, marked the highlights of a none too busy week in the district.

North Basin Area

Southwestern Yoakum County received a new wildcat when Magnolia Petroleum Co. staked No. 1 J. H. Lynn in section 770. The test is approximately a mile and three-quarters northwest of the closest production in the Denver pool. Magnolia holds the north half of the section while the south half is divided between Humble and Shell. Ralph H. Gill No. 1 S. J. Dixon, section 611, seeking a three-quarter mile west extension to the Bennett pool of Yoakum County, set casing at 4,985 feet and will standardize and drill plug in the next few days.

In Gaines County, two closely watched wildcats in the northeastern part of the county were the center of much attention in the area last week. Riddle & Warr No. 1 Brown, section 26, Block G, C.&M. Survey, cored from 5,389 feet to 5,496 feet but only slight shows of oil and poor porosity were reported. About eight miles east of this test, J. T. Perryman No. 1 Doak, halted drilling at 5,128 feet where the hole filled with sulfur water. It has been plugged back to 5,050 feet and testing is in operation on shows from 4,983-89 feet.

Central Basin Area

In south central Andrews County, Rhodes & Tompkins No. 1 Cowden, which opened a new pool in that area, has been gauged at 1,060 bbls. of oil per day from pay encountered from 4,160-4,222 feet. Second location for the new pool is expected to be staked in a few days. A mile west extension to the Fuhrman pool of Andrews County will be sought in an outpost staked by Fuhrman Oil Co. as its No. 1 Ashton. With cellar and pits already dug, the test is rigging up machinery.

Ector County's long undecided wildcat, Ranger, Casteel, Mixon & Richards No. 1 Hendrick, section 4, Block 43, T.&P. Survey, in the southeastern part of the county, was finally abandoned after encountering a hole full of sulfur water at 4,330 feet. The Harper pool of Ector County got an outpost location last week when Ben Rogers and associates staked No. 1 W. B. Powell, in the T.&P. Survey about four miles northwest of the pool. Contract depth is 4,500 feet.

South Basin Area

First wildcat location in several months for Reagan County was announced last week by Thomas Drilling Co. and E. H. Van Patten. It will be No. 1 John O. Carr, in section 4, M. N. Hines Survey, four miles north of the town of Big Lake and 13 miles east of the Big Lake field.

Magnolia Petroleum Co. No. 1-A Tex-Mex-McKee, in the Imperial area of northern Pecos County, is fishing for bailer after an unexpected gas-blow lodged it in the hole while cleaning out. The well was plugged back and is testing the Middle Simpson sand after proving a failure in the Ellenburger of Lower Ordovician.

WEST CENTRAL TEXAS

Opening of a new Jones County oil pool about two miles northeast of the Hawley field was indicated last week after S. B. Roberts Co. No. 1 Roy E. Prichard started filling at the rate of about 200 feet per hour while drilling through 18 feet of saturated sand streaks from 2,065 feet to 2,083 feet in the Tannehill sand horizon. Liner was set on top of the sand and tubing is being run for a pump test. Location is on a 142-acre lease in the Martinez Survey in the central part of the county. The well is showing no water and is estimated for about 100 bbls. per day.

Opening of a new pool in Brown County was seen when a wildcat drilled by J. O. Hart & Sons on the J. W. Hammond lands of the Moses Little Survey, began flowing by heads from two and a half feet of oil sand topped at 1,292 feet. Operators plan to complete the well next week. Meanwhile a second test for the prospective pool is being spudded in 550 feet southwest of the J. O. Hart well.

In Fisher County, Daube Brothers No. 1 Bennett, which opened a new area in the county several weeks ago, is still in the process of testing. A pump test last week netted 15 bbls. of oil per hour with no water showing. Pay is from the Noodle Creek lime from 3,685-95 feet. A new wildcat was started in the county last week when T. G. Shaw spudded in and set 109 feet of surface casing in his No. 1 Stribling. It is about seven miles southwest of Daube Brothers No. 1 Bennett and is contracted for 4,500 feet.

First disappointment for Haskell County new Pardue pool may be marked up at the west outpost drilled by Forest Development Co. Operators shut down for orders after failing to find pay from both the regular lime and the deeper Palo Pinto lime sections. Total depth is 3,850 feet with no showings reported.

Near Woodson in southeastern Throckmorton County, Beacon Oil & Refining Co. set casing at 4,010 feet on top of saturated lime cored from that depth to 4,024 feet. Location is in section 979, T.E.&L. Survey.

Salt water at 1,488 feet, total depth, resulted in plans to plug and abandon Dorothy Oil Co. No. 1 J. L. Johnson, one and one-fourth miles west of Eastland. Previously thought to have opened a new gas area, the test was credited with making 2,000,000 feet of gas.

PANHANDLE AREA

Interest in Ordovician production in the Panhandle field was revived last week when Sinclair Prairie Oil Co. announced plans to drill an 8,000-foot or deeper wildcat in section 23, Block 6, B.S.&F. Survey, about seven miles northwest of Amarillo, in Potter County. This is the first deep test to be drilled outside of the boundaries of the granite ridge which surrounds the large field itself. The oil rights under a large portion of the Bush Dome, upon which the test is to be drilled. are owned by Sinclair Prairie Oil Co. by virtue of its discovering gas in various wells from 1920 to 1925. The gas rights on most of this survey are owned and held by the government as a helium reserve.

WEST TEXAS FIELD COMPLETIONS

(24-hour tests)

Cochran County

Devonian-Honolulu-Cascade No. 1-C-8 Duggan, 5,008-5,051 feet, 278 bbls.

Crane County

Pitzer & West No. 3 Cordova-Union, 2,104-2,170 feet, 572 bbls.

Crockett County

American & Black No. 1-C Powell, 2,572-2,644 feet, 587 bbls. R. H. Henderson No. 1 University, dry and abandoned at 1,595 feet.

Ector County

Blackstock No. 2 G. C. Fraser, 4,042-4,170 feet, 3,524 bbls. Devonian Oil No. 5-F Scarbauer, 4,148-4,205 feet, 432 bbls. Gulf Oil Corp. No. 114 Goldsmith, 4,135-4,200 feet, 2,360 bbls. Gulf Oil Corp. No. 115 Goldsmith, 4,106-80 feet, 1,960 bbls. Landreth No. 6-L Scarbauer, 4,155-95 feet, 754 bbls. Lee Drilling Co. No. 5 T.&P. R.R., 4,005-4,170 feet, 3,618 bbls. Ohio Oil Co. No. 3 Cummins, 4,140-4,213 feet, 541 bbls. Phillips-Pure No. 30 C. Cowden, 4,120-80 feet, 530 bbls. Phillips-Pure No. 31 C. Cowden, 4,095-4,155 feet, 1,845 bbls. Shell Petroleum Corp. No. 2-B T.&P. R.R., 4,235-95 feet, 1,123 bbls. Stanolind Oil & Gas Co. No. 5 Witcher, abandoned location. Texas Co. No. 2-B Parker, 4,050-4,225 feet, 892 bbls. T.&P. R.R. No. 24 Scarbauer, 4,200-55 feet, 150 bbls. T.&P. R.R. No. 26 Scarbauer, 4,197-4,262 feet, 740 bbls. L. H. Wentz No. 4 Paul Moss. 4,010-4,177 feet, 2,457 bbls.

Howard County

Sinclair Prairie No. 56 Dodge, 2,572-2,815 feet, 194 bbls. Sinclair Prairie No. 57 Dodge, 2,550-2,766 feet, 300 bbls.

Pecos County

Arnold Oil Co. No. 3 Scharff, 1,806-1,900 feet, 526 bbls. British American No. 6 Cordz, 1,983-2,060 feet, 101 bbls. W. H. Street No. 1 Shearer, 1,400-1,432 feet, 136 bbls. Waid & Holderman No. 1 J. W. Potts, 1,791-1,837 feet, 601 bbls.

Stonewall County

Bert Fields No. 1 Pierson, dry and abandoned at 4,202 feet. Percy Jones No. 1 fee, dry and abandoned at 3,584 feet.

Sutton County

Basse & Sackett No. 1 Miers, abandoned location.

Upton County

Cordova Union No. 8-A fee, 2,041-2,080 feet, 280 bbls. Gulf Oil Corp. No. 176 McElroy, 2,600-2,835 feet, 2,260 bbls. Gulf Oil Corp. No. 1-C Sherk, 2,675-2,750 feet, 643 bbls. Schermerhorn-Winton No. 1-B Cordova Union, 2,093-2,103 feet, 643 bbls.

Ward County

Gulf Oil Corp. No. 94 Estes, 2,482-2,686 feet, 684 bbls. Gulf Oil Corp. No. 109 Hutchins, 2,590-2,752 feet, 1,110 bbls. O. E. Schkade No. 1 Booger, 1,980-2,108 feet, 21 bbls.

Winkler County

Atlantic Refining Co. No. 7-C Hess, 3,000-73 feet, 2,030 bbls. Humble Oil & Refining Co. No. 7-D Walton, 2,770-2,990 feet, 468 bbls. Magnolia Petroleum Co. No. 160 Walton, 3,185-3,250 feet, 942 bbls. Sid Richardson No. 2 Continental-Jenkins, 3,312-97 feet, 42 bbls. Sid Richardson No. 12-B Humble-Walton, 3,338-3,568 feet, 138 bbls. T.&P. R.R. No. 5 R. C. Thromberry, 2,570-3,067 feet, 762 bbls.

Yoakum County

Fred M. Allison Prod. No. 1 Bennett, 5,035-5,230 feet, 2,009 bbls. Humble Oil & Refining Co. No. 2 Abilene State Bank, 4,995-5,015 feet, 938 bbls. Magnolia Petroleum Co. No. 2 Bennett, 5,025-5,251 feet, 1,807 bbls. Toddie L. Wynne Trustee, No. 3 Fairman, 4,900-5,071 feet, 210 bbls.

Diesel-Electric Locomotives Ordered During the Year

NEW YORK.—Despite a drop of 50 units in total construction of railroad locomotives during the first half of 1938 from 222 units in the first six months of 1937, diesel-electrics increased by one. There were 54 diesel-electric engines shipped during the first half of this year against 53 for the same period in 1937. There were 35 unfilled orders for diesel-electric locomotives in the hands of builders at the end of June compared to 51 at the same time in 1937. Ninety-nine steam locomotives were shipped from plants during the first half of this year compared to 165 for the same period in 1937.

Oklahoma Operations

By DAL DALRYMPLE

Ordovician Production Goal of Washita County Wildcats

Western Oklahoma again claimed interest of oil observers the past week as work started at two new wildcats in Washita County, with deep productive horizons as the goal. Completion of the tenth large producer in the Ramsey pool, Payne County, failure of an outpost and starting of other new work in that area were other features of the week in field operations. The new Noble pool of Cleveland County also claimed interest with issuance of a well-spacing order for that area.

Continental Oil Co. No. 1 Proctor, C NW section 28-10-20w, is the newest Washita County wildcat to be announced. John Koberg and others No. 1-A Harms, C NW NE section 6-10-16w, is the other new Washita wildcat.

The No. 1 Proctor, in extreme western Washita County, is about 8 miles southeast of Elk City across the line in Beckham County and about 20 miles west and 1 mile north of Cordell, the Washita County seat. Location is on a block of 31,585 acres, which extends into Beckham County. The Continental company owns a great bulk of the block, but a few other companies and individuals have some leases. The well is to be an Ordovician test, with the deep pay sands expected at around 8,500 feet, with a possibility that the hole may be drilled to the 10,000-foot level. Fain Drilling Co., Oklahoma City, has the contract. The structure has been thoroughly geologized, with the late Clyde Becker of Chickasha credited with making the first subsurface survey of the territory more than 10 years ago.

Further limitation of the Ramsey pool, Payne County, was recorded at Texas Co. and E. H. Moore, Inc. No. 1 Means, NW NE NW section 19-18-2e, one-half mile south of production and two locations east of a failure of several weeks ago. The No. 1 Means found Wilcox sand at 5,070-90 feet, salt water intruded and it was to be abandoned. The pool also has been defined one-half mile to the west and 1½ miles to the north by Wilcox sand failures. New locations within the proven area include Mid-Continent Petroleum Corp. and others No. 4 Columbia Wetzel, SE NW SW section 18-18-2e, same operators' No. 5 Ramsey, SW NW NW section 18-18-2e and No. 6 Ramsey, NE SW NW section 18-18-2e.

Wildcat Completions

The wildcat that opened a pool near Noble in Lincoln County was listed as a completion the past week. It was W. A. Delaney and associates No. 1 Bugher, SE SE SW section 12-7-2w. On most recent test it pumped 454 bbls. of oil and 1,258 bbls. of water in 24 hours. Previous to putting on pump, it flowed 400 bbls. of oil and 652 bbls. of water through casing. It topped second Wilcox sand at 7,670 feet and was bottomed at 7,682 feet. Twenty-acre triangular well spacing was ordered Friday by the corporation commission for the new area, named the Noble pool. The area included in the spacing order includes sections 6, 7, 18 and 19-7-1w and sections 1, 2, 11, 12, 13, 14, 23 and 24-7-2w, in Cleveland and McClain counties, including the Canadian River. Observers believe the well is on an edge of the structure, but future drilling must determine on which edge. The structure was worked by Hubert E. Bale, geologist. The wildcat has been producing since early in May, but further development of the area was delayed while awaiting the well-spacing order and additional geologic study. Seismograph crews have reworked the area and Delaney and associates have done some core-drilling around the well.

Denver Producing & Refining Co. No. 1 Mathis, SW NW SW section 7-6-6, outpost southwest of the Dora pool, topped dolomite at 3,760 feet, total depth 3,842 feet, pumped 35 bbls. of oil and 2½ bbls. of water in 24 hours and was completed.

Pure Oil Co. No. 1 Lack, SE SW NW section 3-6-5, wildcat south of the Hazel area, Seminole County, was bottomed at 4,270 feet, plugged back to 4,100 feet, perforated casing in Hunton lime at 3,836-55 feet, failed to pump load and was abandoned.

J. M. Henry and others No. 1 Thomas, NE cor. section 9-5-7w, location for a wildcat in Grady County, was abandoned.

Manahan Oil Co. No. 1 Kennedy, NE NW NE section 31-14-11, wildcat near Nuyaka in western Okmulgee County, had a hole full of water and was abandoned at 3,210 feet, total depth.

City of Holdenville No. 1 Fairgrounds, SE cor. section 13-7-8, wildcat near Holdenville in Hughes County, was drilling below 1,170 feet.

E. N. Eldridge No. 1 Aetna, SW SE SW section 2-1n-10w, wildcat southwest of the Hanbury area in Comanche County, was a machine. It was to be a 1,600-foot test.

Cellar had been dug at John Koberg No. 1-A Harms, C NW NE section 6-10-16w, one of two new wildcats starting in Washita County. It was to be a 7,500-foot test. It is a twin to No. 1 Harms, original test on the Koberg block, which had a junked hole at 4,130 feet last October.

Estimated Daily Production

Estimated daily production for Oklahoma for the week ending July 23, and for the preceding week, was as follows:

	Barrels	
	July 23	July 16
Allen	6,150	6,225
Billings	4,450	4,875
Burbank	6,950	7,475
South Burbank	9,525	9,975
Balance Osage	17,000	18,000
Blackwell district	4,275	4,550
Bristow-Slick	6,925	7,175
Chandler	1,675	1,700
Crescent	3,875	3,925
Cromwell	3,125	3,250
Cushing-Shamrock	9,975	10,800
Duncan district	3,675	3,850
Edmond	5,400	5,325
Fish	3,025	3,150
Fitts	40,525	36,925
Jesse	2,350	2,875
Graham	4,225	4,425
Gray	900	975
Healdton	8,150	8,200
Hewitt	4,025	4,100
Keokuk	3,925	4,075
Konawa	1,225	1,250
Lucien	7,225	7,575
Moore	3,475	3,950
Oklahoma City	104,450	105,025
Olympic	4,775	5,425
Ramsey	1,450	1,150
Sasakwa	1,325	1,375
Sholem-Alechem	2,725	2,850
Seminole district:		
Bowlegs	7,325	7,625
Carr City	3,025	3,275
Dora	4,975	5,350
Earlsboro	4,575	4,475
South Earlsboro	425	425
East Earlsboro	4,475	4,575
Little River	6,250	6,900
East Little River	750	825
Maud	600	625
Mission	1,275	1,425
Seminole	7,050	6,900
East Seminole	1,550	1,575
Searight	2,675	2,750
Total Seminole	44,950	73,725
St. Louis-Pearson	19,375	19,750
Tatums	3,250	3,875
Tonkawa-Garber-Thomas	4,025	4,125
Wewoka	2,175	2,200
Yale-Jennings	3,725	3,850
Other pools	80,000	81,500
Total Oklahoma	434,275	442,475

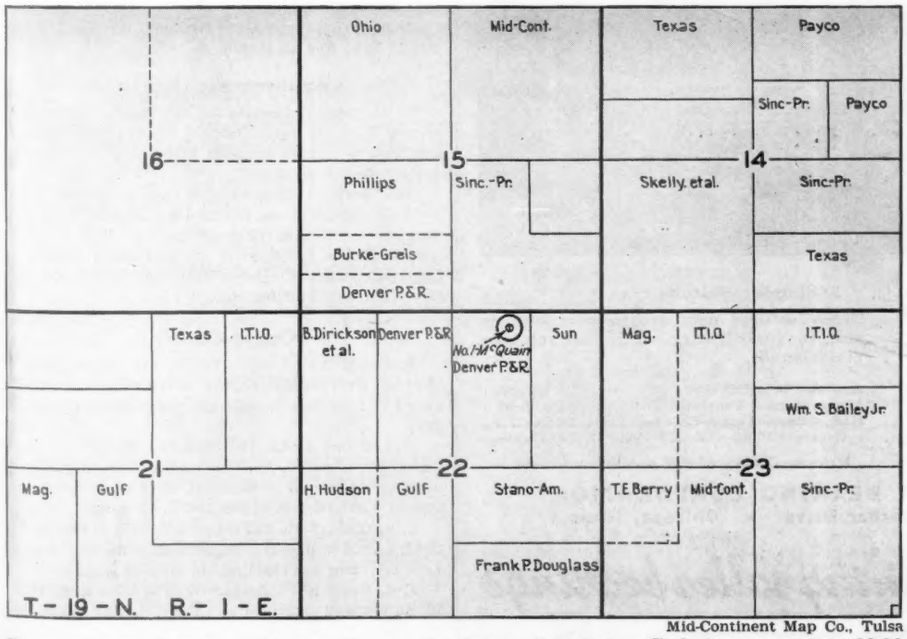
Pontotoc County

Amerada Petroleum Corp. No. 2 Norris, SW SE SE section 26-2n-6, an old well in the Fitts pool, Pontotoc County, was deepened from 4,382 feet to 4,438 feet and pumped 152 bbls. of oil in eight hours, recompleted.

Continental Oil Co. No. 3 House, NW NE SE section 12-1n-7, an old well, was deepened from 4,721 feet to 5,900 feet and recompleted as a salt water disposal well.

Clark & Cowden No. 1-A Starrett, SW NE NE section 21-5-5, an old well in the Bebee pool, was deepened from 2,545 feet to Simpson Dense at 2,582 feet, total depth 2,589 feet, was acidized, pumped 266 bbls. of oil net in 24 hours and was recompleted.

Blackstock Oil Co. No. 2-B Kirby, NW NE SE section 22-2n-7, a shallow test at Fitts, was a cellar. W. A.



Mid-Continent Map Co., Tulsa

Newest Payne County wildcat is Denver Producing & Refining Co.'s test in section 22-19-1e, between the Ramsey and the Orlando pools

Delaney No. 3-A Horn, SW NW NW section 23-2n-7, set big pipe at 99 feet. Senora Oil & Gas Co. No. 1 Cox, NW cor. section 17-5-5, Bebee sector, was rigging up rotary. Clark & Cowden No. 2-A Starrett, NW NE NE section 21-5-5, was moving in material. W. B. Osborn No. 2 Jones, SE NW SW section 33-5-8, Allen field, was a rig.

Lincoln County

Wilcox Oil & Gas Co. No. 13 Sac and Fox, UW SE NW section 15-14-6, Sac and Fox pool, Lincoln County, topped Prue sand at 2,917 feet, total depth 3,007 feet, and flowed 180 bbls. of oil daily.

Same company's No. 1 Saylor, NW cor. section 14-14-6, flowed 47 bbls. of oil daily, with an estimated 2,000,000 feet of gas, from Prue sand found at 2,881 feet, total depth 2,982 feet.

Helmerich & Payne No. 6 Fitch, NE SW NE section 15-14-6, found Prue sand at 2,916 feet, was bottomed at 3,003 feet, and flowed 60 bbls. of oil daily through tubing.

Mudge Oil Co. No. 1 Wray, SW NW SE section 10-14-6, had initial flow of 25 bbls. of oil daily from Prue sand topped at 2,943 feet, total depth 3,013 feet. Gas was estimated at 500,000 feet.

J. I. Doherty No. 1 Todd, SW SW NW section 23-14-6, was dry and abandoned at 3,073 feet, total depth.

Seminole County

Several failures were recorded in Seminole County the past week. Grisso Royalty Co. No. 1-A Sanders, SE NW SW section 27-6-5, was dry and abandoned at 2,930 feet, total depth.

Troup & Moore No. 1 Slaughter, SE NE NW section 27-6-5, was dry and abandoned at 3,712 feet, total depth.

Minnehoma Oil Co. No. 1 Alexander, NE NW NW section 19-6-6, was bottomed at 2,700 feet, and was dry and abandoned.

Queen and others No. 1 Hall, SW SW NE section 30-7-6, Dora area, was dry and abandoned at 2,942 feet, total depth.

Wood Oil Co. No. 3 Maxey, NW NW SW section 1-8-6, found Wilcox sand at 4,179 feet, but was dry and abandoned at 4,189 feet, total depth.

W. B. Pine No. 4 Williams, SE NW NE section 22-6-6, Traugh pool, was abandoned at 2,945 feet, total depth.

W. A. Delaney No. 2 Swan, SW SW SW section 18-6-6, was an abandoned location.

Texas Co. No. 2 James, SW NW SE section 6-9-6, an old well in the Earlsboro field, was plugged back from 4,397 feet to 4,344 feet, ripped casing, acidized and pumped 30 bbls. of oil net in 24 hours, recompleted.

Wood Oil Co. No. 1 Payne, SW SE NE section 2-8-6, Bowlegs pool, was a location. Kilbourne Oil Co. No. 3 Factor, SW NW SW SE section 25-5-7, Allen district, was drilling below 917 feet. Rogers & Rogers No. 1 McKinney, SW NE SW section 25-7-5, had spudded.

Oklahoma County

Ohio Oil Co. No. 5 Messer, SE SW SW section 32-14-3w, Edmond field, Oklahoma County, topped Wilcox sand at 6,698 feet, was bottomed at 6,706 feet, and had initial production of 2,474 bbls. of oil daily, with 2,000,000 feet of gas.

S. L. Clum and others No. 1 Gilleland, SE SW NW section 15-12-3w, Oklahoma City field, was drilling below 3,320 feet. Allin Oil Co. No. 1 Nicholson, SW SE SW section 15-12-3w, was a rig.

Payne County

Mid-Continent Petroleum Corp. No. 4 Ramsey, SW SE NW section 18-18-2e, tenth producer to be completed in the Ramsey pool, Payne County, had initial potential of 8,302 bbls. of oil daily, with 5,090,000 feet of gas. It flowed 1,768 bbls. of oil in the first five hours from Wilcox sand topped at 4,733 feet, total depth 4,767 feet.

Noble County

Lake Petroleum Co. No. 1 Guthrie, SW NW SE section 31-21-2w, North Lucien pool, Noble County, topped Wilcox sand at 5,380 feet, was bottomed at 5,440 feet, and had initial production of 699 bbls. of oil daily, with an estimated 800,000 feet of gas.

Okfuskee County

J. O. Hayes and others No. 2 Durkee, SW SE SW section 21-10-11, Okfuskee County, was dry and abandoned at 3,354 feet, total depth.

Carter County

Phillips Petroleum Co. No. 1 McCrory, NE NW SE section 5-1s-3w, Tussy pool, Carter County, had County Line lime at 2,004 feet, sand showing oil at 2,887 feet, total depth 2,912 feet, and was completed for an estimated 125 bbls. of 25-gravity oil daily.

Caddo County

Phillips Petroleum Co. No. 10 Royse, NW NE NE section 12-5-9w, Cement field, Caddo County, had Deese sand pay at 5,595-5,620 feet, 5,643-67 feet and 5,686-98 feet, total depth 5,712 feet. It was completed pumping 150 bbls. of oil daily.

Ohio Oil Co. No. 5 Belle Hedlund, NW SE NE section 11-5-9w, was an abandoned location.

Pottawatomie County

E. W. Jones and others No. 1-A Hines, NE SW NW section 22-7-4, St. Louis district, Pottawatomie County, had 2,000 feet of water in the hole and was abandoned at 3,183 feet, total depth.

New work in Pottawatomie County: Frank Wolfe No. 1 Canfield, NW cor. section 4-6-5, had dug cellar and pits; Northern States Oil Syndicate No. 2 Williams, NW NE NW section 14-7-4, cellar and pits; Darby Petroleum Corp. and Gulf Oil Corp. No. 3 Hamby, NE NW NW section 14-7-4, was building rig.

Osage County

Barnsdall Oil Co. No. 4 Osage, SW SW SE section 23-24-10, West Barnsdall area, Osage County, was bottomed at 1,764 feet in sand, and pumped 40 bbls. of oil daily.

Sidwell Drilling Co. No. 43 Osage, NE NW SW section 27-24-11, an old well, was deepened from 1,731 feet to Arbuckle lime at 2,023½ feet, total depth 2,029 feet, gauged 3,500,000 feet of gas and was testing.

C. R. Oakleaf No. 153 Osage, SW SE NE section 34-29-10, an old well, was plugged back from 1,725 feet to 1,066 feet, and was cleaning out after shooting.

J. G. Nealy No. 2 Osage, SW NW SE section 18-22-12, an old well bottomed at 1,717 feet, was rigging up to deepen.

Kay County

Tide Water Associated Oil Co. No. 1 School Land,

SHAFER

concave roller design

Shafer CONCAVE Roller Design maintains free-rolling bearing action under severest operating conditions. Only Shafer combines in a simple, compact, and efficient bearing the essential features of

1. Rolling self-alignment within the bearing itself.
2. Capacity for radial, thrust, and combined radial-thrust loads.
3. Simple adjustability.

These features mean greater adaptability, simpler installation, and more reliable performance.

Available in a full range of sizes: Pillow Blocks • Flange Units • Take-up Units • Cartridge Units • Hanger Boxes • Flange-Cartridge Units • Duplex Units • Conveyor Rolls • Radial-thrust Roller Bearings

Write for Catalog 14 with complete information

SHAFER

SHAFER BEARING CORPORATION
35 East Wacker Drive • Chicago, Illinois

self-aligning roller bearings

SE SW SW section 16-28-1w, in the area recently opened near Braman in Kay County, was drilling below 890 feet.

Ohio Oil Co. and Helmerich & Payne No. 1 Wilbur, NW NE NW section 21-28-1w, was digging cellar and pits.

Pawnee County

Henry McNamara No. 1-A Kelso, SE NE SW section 19-21-8, Cleveland district, Pawnee County, was dry and abandoned at 2,393 feet, total depth.

Johnson Oil & Refining Co. No. 7 Edmiston was completed as a 7-bbl. pumper from Buzzard sand at 318 feet, total depth 336 feet.

M. P. Thomas No. 1-A Ackley, SE cor. section 14-20-9, Keystone area, was completed for 1,170,000 feet of gas at 1,371 feet, total depth.

Bert Swift No. 2 Zack-A-Foose, NW SE NE section 23-20-9, was an abandoned location.

M. P. Thomas No. 2-A Ackley, SE SW SE section 14-20-9, had spudded. McMillan & Baze No. 1 Carter, NE NW SE section 25-20-9, an old well bottomed at 1,998 feet, was drilling by junk in hole.

Creek County

J. E. Crosbie, Inc., No. 10 Escoe, NE SW SW section 26-18-8, Olive pool, Creek County, topped Red Fork sand at 2,563 feet, total depth 2,600 feet, and swabbed 50 bbls. of 37-gravity oil daily.

Adams & Thornton No. 1 McKillop, SW NW NE section 30-17-10, Kellyville area, had a hole full of water and was abandoned at 2,270 feet.

Oklahoma Gasoline Plants No. 1 Carman, NW SW NW section 30-17-8, Olean area, pumped 3 bbls. of oil and 15 bbls. of water but was abandoned at 2,755 feet, total depth.

Big Four Petroleum Co. No. 2 Rector, NW NW NE section 24-19-7, had Red Fork sand at 2,617 feet, total depth 2,658 feet, and flowed 75 bbls. of oil daily with 1,000,000 feet of gas.

Sooner Oil & Gas Co. No. 2 Simons, SW SE SW section 26-18-11, Sapulpa district, was dry and abandoned at 1,668 feet, total depth.

New activity in Creek County: McMann & Steckoll No. 3 Walker, NW SE NE section 32-14-10, was drilling below 2,046 feet; Strozier Drilling Co. No. 1-A Ricks, SE SE NW section 12-16-11, rigging up machine; Indo Oil Co. No. 1 Watta-She, NE NE NW section 4-17-10, drilling below 950 feet; R. Dillenbeck No. 1-A Berryhill, NE SW SE section 4-18-10, rigging up machine; Wood Oil Co. No. 1 Gabriel, NW NE SW section 24-19-7, drilling below 500 feet; H. C. Fogle No. 1-A Replogle, CNL N half NE section 36-19-7, spudded.

Muskogee County

Lambert & Wachob No. 1 Bingham, NW NW SW section 5-15-15, Muskogee County, was dry and abandoned at 1,340 feet, total depth.

Penbrook Oil Co. No. 1 Fewell, NW SW NW section 14-13-16, was a machine. Robinson Oil Co. No. 5 Robinson, C N half SE SE section 18-13-16, was a machine.

Haskell-Latimer Counties

Utilities Gas Production Corp. No. 2 Johnson, C NE SE section 27-8-20, Kinta area, Haskell County, was rigging up machine.

LeFlore County Gas & Electric Co. No. 26 Orr, NE SE SE section 1-6-22, Latimer County, was drilling below 960 feet.

Okmulgee County

M. E. Craig No. 1-A Lewis, SE SE NW section 25-14-14, Bald Hill area, Okmulgee County, had a hole full of water and was abandoned at 1,140 feet.

Ed Smith No. 3 Keaton, SE NE NE section 1-14-12, was dry and abandoned at 2,797 feet, total depth.

Steinberger and others No. 1-A Caldson, SE SE NE section 21-16-11, had a hole full of water and was abandoned at 900 feet, total depth.

First reports of new operations in Okmulgee County: Detrick No. 1-A Anderson, SE SW NW section 15-13-13, an old well being deepened from 1,487 feet, drilling below 1,550 feet; W. O. Schock No. 1 Miller, CSL SE SW section 9-14-11, location; W. V. D. Maas No. 7 Basen, CNL NE NE section 36-14-12, rigging up machine; F. E. Cusack No. 5-A Schact, CEL SE SW section 15-13-14, rigging up machine; H. C. Archer No. 1-A Champion, NW SW NW section 28-14-14, drilling below 600 feet; Bryan Petroleum Co. No. 3 Phillips, NE cor. section 8-15-11, rig; B. H. Young No. 1 Anderson, NE NE NW

(Continued on Page 231)

1/8 TO 3/4 INCH PIPE
5/16 TO 1 INCH BOLTS

ADJUSTABLE
1/64" ON BOLTS
2 TO 4 TURNS ON PIPE

These new "TOLEDO" adjustable die heads and dies represent the greatest advancement in small die head construction in years. Standard pipe or bolt threads, or an over or under adjustment of 1/64" on bolts, and 2 to 4 turns on pipe are obtained by loosening the four cover screws and turning the knurled ring until the dies are set to the desired size.

Dies may be removed and reground when dull or may be replaced at small expense. Pipe dies may be easily inverted for cutting pipe threads close to wall or ceiling. Each die head has ample chip clearance. Die heads may be used in the new two-handle die stock or in the ratchet handle for close quarters.

Make up any combination required, and specify type of handle.

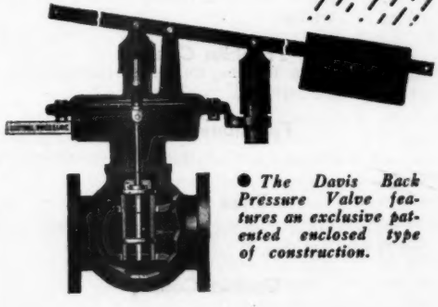
RATCHET	1.95	2 HANDLE STOCK	1.95
1/8", 1/4" OR 3/8" ADJUSTABLE DIE HEAD WITH R.H. PIPE DIES	3.35		
1/2" OR 3/4" ADJUSTABLE DIE HEAD WITH R.H. PIPE DIES	3.50		
5/16", 3/8", 7/16", 1/2" OR 9/16" ADJUSTABLE DIE HEAD WITH R.H. BOLT DIES U.S.S. OR S.A.E.	3.35		
5/8", 3/4", 7/8" OR 1" ADJUSTABLE DIE HEAD WITH R.H. BOLT DIES U.S.S. OR S.A.E.	3.50		

PRICES F.O.B. TOLEDO, OHIO, OR DISTRIBUTOR'S STOCK

THE TOLEDO PIPE THREADING MACHINE CO.
TOLEDO, OHIO NEW YORK OFFICE, 72 LAFAYETTE ST.

"TOLEDO"

WEATHERPROOF!



● *The Davis Back Pressure Valve features an exclusive patented enclosed type of construction.*

RAIN or shine, you will always find the No. 330 Davis Gas Back Pressure Valve on the job giving reliable, trouble-free service. Its patented weatherproof design and rugged construction have made it a favorite in all parts of the country. Merely by reversing the counterweight, No. 330 is convertible for either vacuum or back pressure. Balanced valve action plus external oil dash pot give sensitive, accurate control regardless of flow velocity. Interchangeability of diaphragms and outside trim reduces stock of parts required. Modern corrosion-resistant materials minimize maintenance. Quick delivery can be made on all standard sizes. *Write.* DAVIS REGULATOR CO., 2543 S. Washtenaw Ave., Chicago, Ill.

The DAVIS Gas Back Pressure Valve

North and East Texas

By D. H. STORMONT

Northern Archer County Has New Test for Deep Production

WICHITA FALLS, Tex., July 25.—Another attempt to find deep production in northern Wichita County will get under way within a short time. Fresno Oil Co. and W. B. Omohundro have completed arrangements for a 4,000-foot wildcat test to be drilled on the L. F. Ramming lands, section 1, H.&T.B. Survey, in the northern part of the county. The Fresno company has approximately 1,300 acres in a block around the location, 300 acres of which has been held by shallow production since 1920.

South of Wichita Falls in Wichita County, Continental Oil Co. and Petroleum Producers Co. No. 1 State Asylum Lands, which opened a deep Strawn pool three miles south of the city, on last gauge flowed 3.4 bbls. of oil per hour or at the rate of about 83 bbls. per day. This is far below the previously estimated potential of the well. Since the well made its first large flow, production has shown a steady decline, even after being retreated with 8,000 gallons of acid earlier in the week. Tubing pressure on the last gauge was 30 pounds and casing pressure was 280 pounds as compared with 400 pounds of casing pressure on the well's initial flow.

On the west side of the K.M.A. field, deep production possibilities for the Wichita-Wilbarger County line area were set back when Staley Oil Co. abandoned its test in section 2, H.&T.C. Survey as a dry hole. The well topped the deep lime at 3,900 feet and carried it to 4,000 feet without picking up any oil showings. It is the farthest northwest test to be drilled in the search of K.M.A. pay. To further this search for deep production in Wilbarger County, Target Drilling Co. announced location for a 4,000-foot test in the Waggoner lands, section 27, Block 6, H.&T.C. Survey, 1½ miles northwest of the Lloyd Brown No. 1 Waggoner, dry hole at 4,100 feet.

Archer County

Possibilities of a new northwestern Archer County deep Basal Strawn sand oil pool were seen last week. An entirely new producing horizon in the county was found by Fain-McGaha Oil Corp. when its No. 1 Crory, Block 44, A.T.N.C.L. Survey, 4 miles east of the Hull-Silk pool, encountered saturation in sand from 4,740-58 feet. A 15-minute drill stem test netted 300 feet of fluid, 200 feet of which was oil and the remainder drilling fluid. Operators are cleaning out preparatory to running casing for a production test. Nearest production is in the Hull-Silk pool which has three producing horizons; 3,800 feet, 4,300 feet and 5,100 feet.

Other Counties

Indications were seen last week of a new producing horizon, the Ellenburger of Lower Ordovician, for the Rock Crossing pool of Wilbarger County. Phillips Petroleum Co. No. 26-A Waggoner, section 42, Block 4, H.&T.C. Survey, in the center of the pool, flowed 51 bbls. of oil in three hours through three-eighths inch choke, then died. The well showed no water in the productive formation from 4,746 feet to 4,765 feet and operators are now cleaning the hole preparatory to running tubing and completing the well.

Deep producing possibilities for Montague County will be tested again at a wildcat to be drilled on the J. P. Hill lands, Blocks 71 and 72, Kaufman County School Lands Survey. The test will go to 3,000 feet unless production or salt water is encountered at a shallower depth.

New gas area for western Cooke County has been opened by Whitfield, Pearson & Grimes No. 1 Voth, in the W. W. Fulton Survey, abstract 1,251, two miles southwest of the 1,700-foot horizon, Muenster townsite pool. The new producer tested 8,000,000 feet of gas and a spray of oil after a 750-gallon acid treatment. The test is showing from 1,812 feet in sand, plugged back from the Ellenburger, which was topped at 1,870 feet.

EASTERN TEXAS

DALLAS, Tex., July 25.—Considerable leasing activity is reported in the Arcadia section of northwestern Henderson and southeastern Kaufman counties where a new Paluxy sand wildcat is scheduled to commence soon. Superior Oil Corp. has signed contract for a 4,500-foot test to the Paluxy in the Fitzgerald Survey of southeastern Kaufman County, about eight miles northeast of the discovery well in the Flag Lake field. Two other wildcat tests were announced for Kaufman County over the past week. Smith & Tyler have staked its No. 1 and No. 2 Phoenix Realty Co. in the W. G. Hill and S. D. Staver Surveys respectively and were preparing to move in machinery and rig for the first test. Six miles west of this test and in southwestern Van Zandt County, T. O. Griffith and others are reported to have staked a test in the Fitzgerald Survey on their 3,000-acre block which they intend to carry to the Paluxy sand.

Leon County

Indications were seen last week for commercial oil production in the large Buffalo Woodbine sand gas structure of Leon County, with reported oil showings in the upper Woodbine sand in the Lone Star Gas Co. No. 2 G. W. Lee, in the Hunter Survey and about 4,500 feet west of the No. 1 Lee, discovery gas well drilled by Shell Petroleum Corp. in 1934. Other tests on the structure, one to 7,000 feet, have heretofore failed to encounter any oil shows. The Lone Star wildcat topped the Woodbine series at 5,520 feet and logged first gas sand with thin streaks showing oil from 5,538 feet to 5,586 feet. Salt water sand was topped at 5,715 feet and the hole is bottomed at 5,797 feet. Operators set seven-inch casing on bottom and will perforate through the horizon for production tests.

EAST CENTRAL TEXAS COMPLETIONS
(24-hour tests)

Anderson County

In the Cayuga field O. M. Rector No. 3 Barton, 3,995-4,018 feet, 94 bbls. Garper & Turner No. 3 H. W. Barton, 4,001-59 feet, 184 bbls. In the Long Lake field J. D. Baker No. 1 Betz-Robinson, 5,341-49 feet, 80 bbls. J. G. Mayo No. 1 Royall-Davey, dry and abandoned at 4,298 feet.

Angelina County

K. L. McHenry No. 1 L. Henderson, dry and abandoned at 6,501 feet.

Franklin County

Humble Oil & Refining Co. No. 2 Humble-Penn, 4,214-4,302 feet, 281 bbls.

Freestone County

J. L. Collins & Co. No. 3 Harwell, 4,004-23 feet, 260 bbls.

Titus County

Humble Oil & Refining Co. No. 7 Pan American, 4,253-77 feet, 223 bbls.

Upshur County

E. J. Dupree No. 1 Lawrence, dry and abandoned at 4,308 feet

EAST TEXAS FIELD COMPLETIONS
(one hour tests)

Gregg County—Longview Area

General American No. 27 Adams, 3,582-91 feet 60 bbls. General American No. 25 J. G. McGrede, 3,630-38 feet, 60 bbls. Gilcrease Oil No. 4 J. R. Fenton, 3,589-3,620 feet, 100 bbls. Gulf Oil Corp. No. 11 M. F. Baker, 3,584-90 feet, 90 bbls. Humble Oil & Refining Co. No. 34 T. M. Armstrong, 3,553-3,614 feet, 40 bbls. Joe Long Drilling Co. No. 27-A W. W. Owens, 3,617-28 feet, 50 bbls. Magnolia Petroleum Co. No. 9 P. C. Castleberry, 3,596-3,615 feet, 50 bbls. J. F. Merrick No. 3 H. L. Phillips, 3,638-39 feet, 60 bbls. L. W. Powell No. 2 J. B. Tennery, 3,644-47 feet, 60 bbls. United E.&W. No. 8 E. L. Walker, 3,593-96 feet, 30 bbls

Gregg County—Kilgore Area

Atlantic Refining Co. No. 9 Clayton, 3,516-57 feet, 100 bbls. Atlantic Refining Co. No. 7-A Tripp Elder, 3,528-99 feet, 15 bbls. Estelle Oil & X.Y.Z. No. 2 I.&G.N. R.R., 3,610-61 feet, 80 bbls. Halil Smith No. 7 J. A. Knowles, 3,538-47 feet, 15 bbls. Magnolia Petroleum Co. No. 5 M. Goyne, 3,599-3,612 feet, 68 bbls. Overton Refining Co. No. 34 I.&G.N. R.R., 3,539-56 feet, 37 bbls. Davis & Hart No. 7 Elder-Rowland, 3,513-55 feet, 7 bbls. Shell Petroleum Corp. No. 12-A N. Jobe, 3,526-3,627 feet, 66 bbls. Shell Petroleum Corp. No. 34-A B. F. Laird, 3,552-3,605 feet, 40 bbls.

Rusk County—Kilgore Area

Atlantic Refining Co. No. 5-A L. Morse, 3,558-3,700 feet, 64 bbls. Delta Drilling Co. No. 7 C. E. Christian, 3,632-33 feet, 73 bbls. Delta Drilling Co. No. 8 C. E. Christian, 3,627-28 feet, 60 bbls. Geier Brothers No. 3 D. Florence, dry and abandoned at 3,700 feet. Humble Oil & Refining Co. No. 16 M. E. Minor, 3,692-96 feet, 55 bbls. Magnolia Petroleum Co. No. 19 C. C. Still, 3,695-3,715 feet, 40 bbls.

Rusk County—Joiner Area

C. L. Archer & O. V. Minor No. 3 J. H. Stewart, 3,762-65 feet, 80 bbls. Humble Oil & Refining Co. No. 5-A Ida Holt, 3,757-58 feet, 74 bbls. Hunt Oil Co. No. 40-C R. W. Fair, 3,601-03 feet, 58 bbls. P. G. Lake No. 6 Barkdale, 3,660-84 feet, 28 bbls. Magnolia Petroleum Co. No. 10 C. D. Ashby, 3,622-35 feet, 20 bbls. Ohio Oil Co. No. 41 E. E. Moores, 3,617-75 feet, 28 bbls. Tex-Jersey Oil No. 5 G. W. Eaton, 3,755-66 feet, 90 bbls. Tide Water Asso. No. 31-B L. J. Pinkston, 3,730-60 feet, 60 bbls. Tide Water Asso. No. 6 J. E. Thrash, 3,707-31 feet, 48 bbls.

Smith County

Magnolia Petroleum Co. No. 11 A. T. Tyiska, 3,817 18 feet, 40 bbls. Sinclair Prairie No. 5 Wright Consolidated, 3,700-22 feet, 60 bbls.

Upshur County

Jack Harrell No. 2 Cavanaugh, 3,588-90 feet, 40 bbls.

NORTH TEXAS COMPLETIONS
(Week ending July 23, 1938)

Archer County

Sam K. Viersen No. 2 W. P. Ferguson, 3,819-3,841 feet, 300 bbls. Shappell Oil Co. No. 4 Grace Bell, 1,013-18 feet, 100 bbls.

Cooke County

Mudge Oil Co. No. 4 R. W. Trew, 1,098-1,167 feet, 42 bbls. Whitfield Pearson & Grimes No. 1 B. Voth, 1,618-1,884 feet, 5,150,000 feet gas.

Montague County

Humble O.&R. Co. No. 1 E. G. Adams, 2,478 feet, dry.

Wichita County

Christie Hickman No. 6 W. P. Bolding, 3,693-3,835 feet, 800 bbls. Christie Hickman No. 7 W. P. Bolding, 3,772-3,818 feet, 800 bbls. Doss and others No. 1 W. W.

(Continued on Page 223)

Kansas Developments

By
DAL DALRYMPLE

New Oil Zone at Weathered; Russell Wildcat Opens Pool

A Mississippi lime discovery well in the Weathered pool of Cowley County was completed for large initial production, a Russell County wildcat found Arbuckle lime production and several other Kansas outposts were showing as pool openers or extensioners. Only routine developments were reported in proven areas, where drilling operations continue at low ebb.

Phillips Petroleum Co. No. 1 Miller, C NW SW section 29-13-14w, opened a new Arbuckle area two miles west of Russell, in the county of that name, and three-fourths mile southeast of nearest production in the Atherton pool. After acidization, it made initial potential of 829 bbls. of oil daily. Arbuckle formation was found at 3,310-11 feet, total depth.

C. L. Carlock and others No. 1 Heinz, NW NW SE section 8-18-10w, one and one-fourth miles south of the Habiger pool in Rice County, was acidized and made potential of 1,188 bbls. of oil in 24 hours to open a Lansing-Kansas City lime area. It topped the lime at 2,925 feet, had saturation at 3,009 feet and was bottomed at 3,019 feet.

W. I. Southern Inc. No. 1 Letsch, CNL S½ SW section 17-15-13w, about one mile south of the Coralena pool and a similar distance north of the Trapp field in Russell County, also was credited with initial potential of 1,118 bbls. of oil daily, after acidizing. It was bottomed at 3,230 feet in Arbuckle formation.

National Refining Co. No. 1 Trustee, SE SE NE section 8-27-2e, a recent Chat discovery well in Sedgwick County, was deepened to Viola lime at 3,252-58 feet, total depth, and 2,300 feet of oil rose in the hole, with no water present. Operators were running tubing preparatory to testing. Originally, it had Chat at 2,945 feet, the hole filled with water from 2,961-64 feet and it showed for 200 bbls. of high-gravity oil daily from Chat at 2,986 feet. This wildcat is one and one-half miles northeast of the Eastborough pool and seven miles northeast of Wichita.

Harwood Oil Co. and R. M. Heilman No. 1 Sawyer, SE NE NE section 10-28-7e, one and one-half miles northeast of the recently extended Brandt pool in Butler County, was showing as a small pool opener. It topped Mississippi lime at 2,732 feet, total depth 2,762 feet, and was reported pumping 40 bbls. of oil daily from the first break in the lime.

Wildcat Reports

Western Kansas Oil & Refining Co. and others No. 1 Barnes, NW cor. section 8-21-12w, wildcat northwest of the Sittner pool in Stafford County, found Arbuckle dolomite dry at 3,644-94 feet, total depth, and was abandoned.

Smalley & Stauffer No. 1 Samples, SE NW NE section 15-26-13, wildcat in eastern Greenwood County, topped Mississippi lime at 1,520 feet, had a hole full of water at 1,550-52 feet, total depth, and was abandoned.

Phil-Han Oil Co. No. 1 Evans, NW NW SE section 21-23-15, Woodson County wildcat, topped Mississippi lime at 1,526 feet and was bottomed at 1,545 feet. After acidizing with 1,500 gallons, it pumped 20 bbls. of 40-gravity oil and 20 bbls. of water daily, and was completed. It opens a producing area northeast of the Wiede pool.

Dewey Byers No. 1 Weathers, SW SW NE section 35-20-14w, was an abandoned location for a wildcat in Barton County. F. O. Haun No. 1 Gravenhorst, SE cor. section 7-6s-16w, was an abandoned wildcat location in Rooks County.

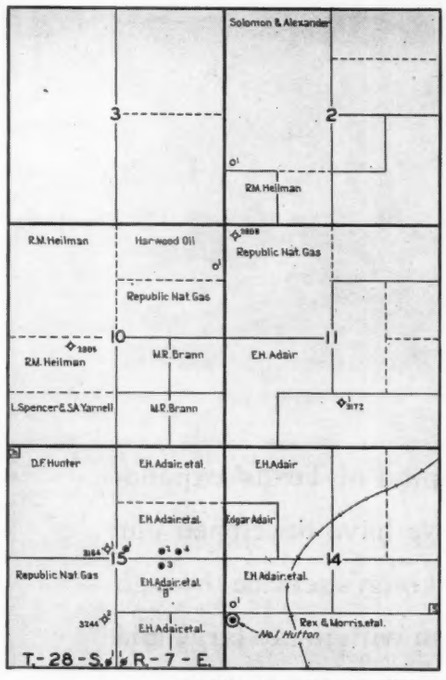
The following new wildcat tests were reported: C. B. Davis No. 1 Smith, SW NW NE section 11-12-16w, wildcat in Ellis County and west of the Fairport field, set 8-inch casing at 2,294 feet and was drilling ahead below 2,305 feet.

In Rice County, Duwe & Farris and Atlantic Refining Co. No. 1 Remmert, SW SW NW section 3-18-9w, was rigging up rotary for a wildcat northeast of the Chase pool.

In Cowley County, W. M. McKnab No. 1 O'Neil, NW NW SE section 27-32-3e, wildcat west of Winfield, was a rig.

Joe Nathan and others No. 1 Ellis, NW NW SE section 35-25-14, was rigging up machine at a wildcat south of the Batesville area in Woodson County.

In Meade County, Cragin, Reuscher & Turner No. 1



Mid-Continent Map Co., Wichita

Newest test in the Brandt pool of Butler County, indicated by the circle, and Harwood discovery shown in section 10

Adams, NW NW SE section 22-34-30w, wildcat west of Uneda, was drilling below 200 feet.

Cowley County

The Weathered pool in Cowley County was given a new producing horizon at Earl Wakefield No. 3 Wilson, SE NE NW section 4-32-3e, at the south end of the field. It found Mississippi lime, the new producing zone for this area, at 3,003 feet, had oil showing at 3,065-70 feet, set 6-inch pipe at 3,059 feet and had more oil showing at 3,150 feet, total depth. It was treated with 4,000 gallons of acid, flowed 810 bbls. of 38-gravity oil the first four hours, 520 bbls. the next four hours and made potential of 3,124 bbls. of oil, with no water. Twenty other wells in the Weathered pool, producing from Arbuckle lime, had total potential of 41,572 bbls. of oil on the July report, and two wells producing from Lansing-Kansas City lime had total potential of 627 bbls. Some observers considered the No. 3 Wilson a freak well, such large production in the Mississippian formation being unusual.

Another large producer was completed in the recently revived Hittle pool at Texas Co. No. 6 Hittle, NW NE SE section 21-31-4e. It found Arbuckle lime at 3,323½ feet, was bottomed at 3,327 feet, and flowed 420 bbls. of oil in seven hours. On completion test, it flowed 402 bbls. of oil the first four hours, 424 bbls. the next four hours and made potential of 2,454 bbls. of oil, with no water. It also had a showing of oil in Bartlesville sand at 2,965-82 feet.

New work in Cowley County: Earl Wakefield No. 5-A Wilson, SW NE NW section 4-32-3e, Weathered area, moving in material; McNab No. 1 Byers Land Co., SE NE NW section 21-32-5, Frog Hollow pool, cellar; Trees Oil Co. No. 4 Lewis, NW NE NE section 28-31-4e, Hittle Pool, an old well bottomed at 2,434 feet, rigging up to deepen; Texas Co. No. 1 Goodrich, SE SW SE section 21-31-4e, an old Hittle well bottomed at 2,381 feet, rigging up to deepen; Arthur Brewer No. 1 Lewis, NW SE NE section 28-31-4e, location for a new Hittle test.

Estimated Daily Production

Estimated daily production for Kansas for the week ending July 23, and for the preceding week, was as follows:

	Barrels	
	July 23	July 16
Oxford City	1,125	1,150
Burrton	9,500	9,625
Ritz-Canton	4,200	4,225
Graber	3,625	2,376
Hollow-Nikkel	3,075	3,150
Lerado	975	1,125
Voshell	1,900	1,925
Wellington	4,975	1,750
Ellsworth County:		
Lorraine	2,300	1,850
Other pools	1,155	1,460
Rice-Barton counties:		
Bloomer	2,350	1,750
Chase	4,650	4,500
Geneseo	3,275	2,425
Raymond	825	975
Silica	11,625	10,950
South Silica	1,800	2,625
Keesling	750	800
Wherry	3,850	3,725
Miscellaneous Barton	6,435	6,170
Miscellaneous Rice	3,650	3,615
Russell County:		
Fairport	1,860	1,670
Gorham	1,185	1,605
Russell	1,290	1,235
Sullivan	5,280	4,150
Trapp	5,900	7,465
Miscellaneous Russell	7,670	6,305
Sedgwick County:		
Valley Center	1,065	1,095
Miscellaneous	2,870	2,985
Ellis County:		
Bemis	4,750	7,025
Miscellaneous	2,515	3,495
Kingman County	500	500
Stafford County	4,065	4,040
Greenwood County	8,900	8,950
Butler County	15,320	15,150
Other fields	22,515	21,834
Total Kansas	157,725	153,675

Russell County

W. I. Southern, Inc., No. 5 Neidens, SE NE NE section 32-15-13w, Trapp field, Russell County, topped Arbuckle lime at 3,337 feet, was bottomed at 3,340 feet, acidized with 500 gallons, pumped 195 bbls. of oil in six hours and made potential of 1,378 bbls.

Transwestern Oil Co. No. 12 Helen Polcyn, SW NW SE section 10-14-15w, Gorham area, found Gorham sand at 3,254-57 feet, total depth, and made potential of 501 bbls. of oil.

A. H. Witt No. 1 Polcyn, NW NE NE section 14-14-15w, found Arbuckle lime but no oil at 3,282 feet, was bottomed at 3,285 feet, water intruded and it was abandoned.

Stanolind Oil & Gas Co. No. 6 Oswald, NW cor. section 8-12-15w, an old well in the Fairport area, was deepened from 2,956 feet to Kansas City pay at 3,182-85 feet, total depth, acidized and had initial production of 67 bbls. of oil and 40 bbls. of water, recompleted.

Mid-Continent Petroleum Corp. No. 1 Rogg, NW NW SE section 32-14-13w, Hall pool, was rigging up rotary. W. I. Southern, Inc., No. 1 Hinderliter, SW NW NW section 33-15-13w, Trapp field, was a location. Darby

Petroleum Corp. No. 9 Michaelis, NE SW SE section 36-15-14w, was rigging up rotary.

Rice County

Gulf Oil Corp. No. 3 Stout, SW NE NE section 6-18-10w, Habiger area, Rice County, found Kansas City lime at 2,942 feet, total depth 3,024 feet, was acidized with 6,000 gallons and 5,000 gallons, flowed 677 bbls. of oil the first four hours, 332 bbls. the next four hours and made potential of 1,934 bbls.

Cities Service Oil Co. No. 2 Batterton, SE cor. section 11-18-8w, Geneseo district, topped Arbuckle lime at 3,211 feet, total depth 3,245 feet, was treated with 2,000 gallons of acid, pumped 166 bbls. of oil the first four hours, 122 bbls. the next four hours and made potential of 729 bbls.

Magnolia Petroleum Co. No. 1 Engelland, NE NE SE section 16-21-7w, Wherry area, had a hole full of water in Arbuckle lime at 3,781-82 feet, total depth, and was abandoned.

Magnolia Petroleum Co. No. 5 Beyers, NW SW NW section 21-19-9w, an old well in the Chase field, was recompleted as a 15-bbl. minimum well after plugging back from 3,259 feet to 3,254 feet and acidizing.

Frank Hollow No. 2-A Stout, SE SE NE section 6-18-10w, was a location in the Habiger area.

Barton County

Magnolia Petroleum Co. No. 11 Meda Steckel, SW NW NW section 1-20-11w, Silica field, Barton County, found Arbuckle lime at 3,777 feet, total depth 3,293 feet, and was acidized with 1,000 gallons. It pumped 272 bbls. of oil the first four hours, 266 bbls. the next four hours and made potential of 1,599 bbls. of oil, with no water.

Stanolind Oil & Gas Co. No. 12 Panning B, NE SE NE section 2-20-11w, pumped 307 bbls. of oil the first four hours after acidizing, pumped 296 bbls. the next four hours and made potential of 1,776 bbls. of oil. Production was from Arbuckle lime topped at 3,270 feet, total depth 3,278 feet.

Sinclair Prairie Oil Co. No. 3 Hoffman, C S half S half NE section 7-16-13w, Trapp district, had Arbuckle lime at 3,366 feet, was bottomed at 3,383 feet, plugged back to 3,379 feet when water intruded, and was completed for 15 bbls. of oil daily.

Two new operations in Barton County were reported. M. B. Armer and others No. 1 Debes, NE SE NW section 3-17-13w, Ainsworth pool, was a cellar. Gulf Oil Corp. No. 1 Spanier B, NW SW SW section 12-20-11w, Silica field, was a cellar.

Stafford County

Stanolind Oil & Gas Co. and others No. 4 Volker A, NE SE NE section 23-24-11w, Zenith pool, Stafford County, had Misener sand from 3,790 feet to top of Viola lime at 3,805 feet, and was bottomed at 3,810 feet. It flowed 318 bbls. of oil the first four hours through tubing, the same amount the next four hours and made potential of 1,910 bbls. of oil.

Sinclair Prairie Oil Co. No. 2 Krey, NW NW NE section 14-24-11w, topped Misener sand at 3,766 feet, total depth 3,788 feet, and flowed 545 bbls. of oil in nine hours. On completion test, it flowed 221 bbls. the first four hours through tubing, 159 bbls. the next four hours, and made potential of 955 bbls.

Ness County

Continental Oil Co. No. 1 Everett A, SE SE NW section 8-18-25w, Aldrich area, Ness County, had Mississippi pay at 4,336 feet in lime topped at 4,331 feet, and was bottomed at 4,351 feet. After acid treatment, it pumped 167 bbls. of oil the first 4 hours, 189 bbls. the next four hours and made potential of 1,000 bbls. of oil.

Barber County

Barbara Oil Co. No. 3 McKee, C E half NW NE section 21-33-15w, Medicine Lodge district, Barber County, topped Chat at 4,547 feet, had gas pay at 4,590 feet, total depth 4,643 feet, and produced 14,000,000 feet of gas daily.

Same company's No. 1 Thompson B, C SW SE section 16-33-13w, was a location.

Woodson County

Sinclair Prairie Oil Co. No. 16 McClaskey A, SE NE SE section 30-23-14, Winterscheid area, Woodson County, topped Mississippi lime at 1,646 feet, had pay at 1,652-65 feet, total depth, was acidized and pumped 127 bbls. of oil the first 24 hours.

M. J. Trott No. 1 O'Neal, SE cor. section 21-25-14, topped Mississippi lime at 1,513 feet, had a hole full of water at 1,536 feet and was abandoned at 1,540 feet, total depth.

C. L. Sheedy and others No. 10 Akins, NE SE SE section 19-25-14, Quincy area, had spudded. Same operators' No. 5 Enloe, CNL NW SE section 28-25-14, was rigging up machine.

Butler County

National Refining Co. No. 5 McCullough, NW NE SW section 1-28-6, McCullough pool, Butler County, found water in Arbuckle lime at 3,185-87 feet, total depth, and was abandoned.

Adair & Morton No. 5 Brandt, NE SE SE section 15-28-7, is a location in the Brandt pool, an area recently in the spotlight because of a half-mile southeast extension. The new location is offset by producers to the north, northwest and west.

Stevens County

Panhandle Eastern Pipe Line Co. No. 1 Kilgore, C NE section 17-31-38w, Hugoton field, Stevens County, was bottomed at 2,762 feet and produced 3,000,000 feet of gas daily from Permian pay.

Other New Operations

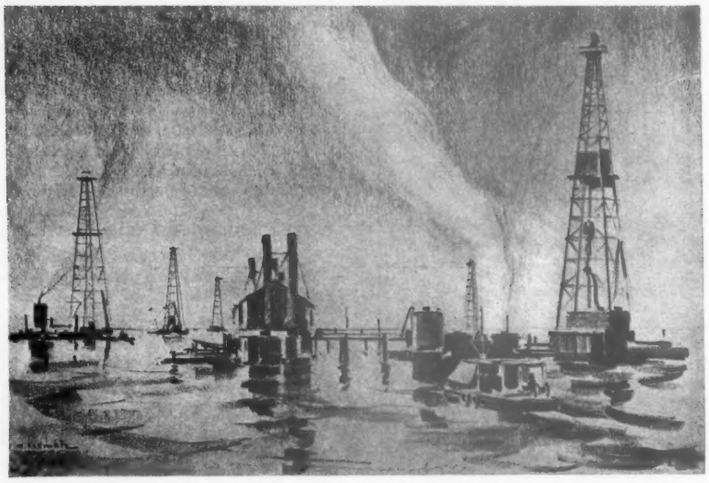
In Ellis County, Twin Drilling Co. No. 3 Goetz, NE NW SE section 3-14-17w, Toulon pool, was drilling with rotary below 1,187 feet. Shell Petroleum Corp. No. 7 Rumsey, NE SW NW section 23-11-17w, Bemis field, was a cellar.

In McPherson County, Continental Oil Co. No. 2 Myer, SE cor. section 19-21-1w, Graber sector, was building rotary rig. In the Ritz-Canton field, F. S. Williams No. 1 Lewis, NW SW SE section 30-19-1w, was a rotary rig.

In Harvey County, Olson Oil Co. and Shell Petroleum Corp. No. 4 Krehbiel & Eymann, NE NE SW section 19-32-3w, Burrton district, was building rotary rig.

In Sedgwick County, L. W. Prunty No. 1-A Lennery, NW NE SE section 17-25-1e, Goodrich sector, was drilling with rotary below 1,340 feet.

In Sumner County, E. B. Shawver and Glimac Oil



SEA-GOING WELLS *From a lithograph by E. M. Schwetz*

Located in the capital of Texas' expanding oil industry, we have developed our facilities for the oil man's service through a happy association with many large and small corporate and individual oil accounts. As a consequence, we feel that we are thoroughly familiar with the oil man's banking needs, and that the comprehensive banking service we render is useful and valuable to him. . . . On this basis, we suggest—*Make the First National your bank.*

FIRST NATIONAL BANK
IN HOUSTON

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

Co. No. 1 Warr, C SW SW section 13-34-2e, Padgett pool, was moving in material.

In Greenwood County, Roscoe Mendenhall No. 1 Coffman, SE SE SW section 17-24-13, an old well bottomed at 1,638 feet, was moving in machine to deepen. Sam Molter No. 1 Lewis, NE SW NW section 36-27-8, was running 10-inch pipe at 855 feet.

East Texas Fields

(Continued from Page 220)

Overby, 3,790-4,005 feet, 960 bbls. Geier Brothers Inc. & Jackson No. 2-B Sue Mitchell, 3,804-3,875 feet, 864 bbls. Geier Brothers Inc. & Jackson No. 1 D. R. Preston, 951-47 feet, 35 bbls. Hanlon-Buchanan Inc. No. 10 Fassett & Tuttle, 3,879-3,965 feet, 500 bbls. King Oil Co. No. 4 Big Wichita River Bed, 3,738-3,864 feet, 1,680 bbls. King Oil Co. No. 2 Sue Mitchell, 3,769-3,885 feet, 720 bbls. King Oil Co. & Perkins Cullum No. 8 Mrs. Anna Mangold, 3,719-3,823 feet, 840 bbls. King Oil Co. & Perkins Cullum No. 1 Chas. Pettit, 3,820-3,873 feet, 1,350 bbls. N. M. Martin & Son No. 1 N. H. Martin and others 3,771-3,889 feet, 224 bbls. Petroleum Producing Co. No. 1 Waggoner, 3,790-3,879 feet, 736 bbls. D. W. Power and others No. 5-A L. C. Denny, 585-598 feet, 24 bbls. D. W. Power and others No. 2 D. E. Hooks, 3,806-3,851 feet, 848 bbls. D. M. Ross No. 22 Sue Mitchell, 3,826-3,865-feet, 656 bbls. Sinclair Prairie Oil Co. No. 2 N. H. Martin, 3,760-3,872 feet, 304 bbls. Staley Oil Co. & Omohundro No. 1-B T. L. Burnett and others, 3,295 feet, dry. Staniforth Oil Co. No. 1 N. H. Martin, 3,782-3,813 feet, 323 bbls. Sam K. Viersen No. 2 R. L. Kempner, 3,770-3,832 feet, 345 bbls. Sam K. Viersen No. 1 R. L. Kempner B, 3,796-3,847 feet, 600 bbls. Mrs. H. B. Wallace No. 3-D W. J. Logan, 3,728-3,820 feet, 936 bbls. White & Duncan No. 10 Waggoner Norba, 1,370-87 feet, 20 bbls.

Wilbarger County

Paradise Oil Co. No. 3 W. T. Waggoner B, 1,539-53 feet, 223 bbls.

Young County

Burns & Stilly No. 2 Mary A. Spencer, 882 feet, dry. Pemeta Oil Co. No. 9 J. L. Jordan, 662-74 feet, 2 bbls. W. R. Worthington No. 1 W. W. Hubbard, 1,107 feet, dry. J. W. Rhodes No. 5 Mrs. E. Taylor, 3,907-3,941 feet, 1,848 bbls.

Eastern Fields

(Continued from Page 206)

W. B. Fogarty test, and spudded in the Bratton Hanna test. In Malden district, North Eight Producing Co. has reached 4,898 feet on the L. E. and R. Belcher farm, or 45 feet in the Oriskany sand, and so far dry.

Deep Tests

In Pleasants County, the test of Columbian Carbon Co. on the Giles Hammet farm in Grant district is drilling at 3,370 feet with about 20 bbls. of oil showing from the shales at 2,920-30 feet. It is being drilled to the Oriskany sand.

In Wood County, W. H. Bickel is drilling at 4,454 feet on his own property in Lubeck district, or 28 feet in the Oriskany sand. So far there has been no showing of oil or gas. The sand is hard and white. The test is shut down for a new line expected this week.

In Jackson County, United Carbon Co. has reached 3,385 feet on the Elizabeth Ward Perkins farm in Washington district, being tested for an extension of the Kanawha gas pool.

New Work

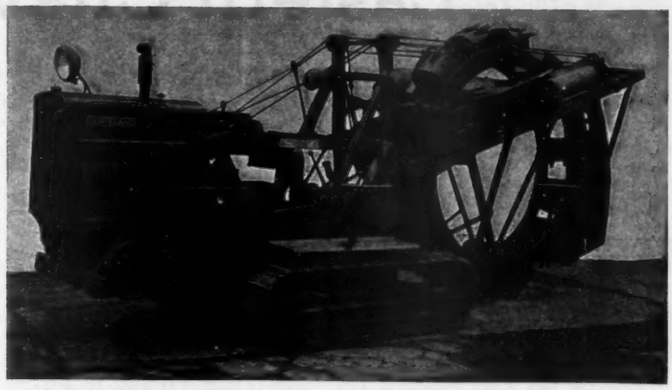
In Wetzel County, Manufacturers Light & Heat Co. has a rig on the W. O. Kincaid and others lease in Proctor district. In Center district, Hope Natural Gas Co. has a rig on the Astel Miller farm.

In Calhoun County, Garrett and Garrett have part material on the ground for No. 3 Fogel and Wilson, Sherman district. In Lee district, Bruce Ferrell has a location on the Fred Rigg farm. In Washington district, O. D. Jones has a location on the Pricy Sampson farm. In Center district, Hope Natural Gas Co. is building rig for No. 7814 Evelyn M. Kenny.

In Lewis County, Goodwin and Watson have a location on the G. and C. Burkhammer farm in Court House district. In Freemans Creek district, Mud Lick Oil & Gas Co. is building a rig on the Rinehart and Talbot lease.

A SURE WAY TO SOLVE . . . YOUR DITCHING PROBLEMS

DIG "Anywhere--Anytime"



with "CLEVELANDS"- - -

You Get—MOST DITCH—IN MOST PLACES—AT LEAST COST—

Put "Clevelands" on the line! It's a sure way to cut ditching costs, as has been proved time and time again on thousands of miles of work, embracing all types of soil and topographical conditions.

"Clevelands" accomplish this because practically every operation incidental to mechanical ditching has been speeded up . . . . waste motion eliminated . . . . precious minutes saved. The result is *more productive time.*

Here is soundly engineered equipment, ultra-modern in design, backed by a quality of construction that is without equal. It assures you of long life, resistance to wear and abuse—*dependability.*

On main transmission lines, gathering systems, small field lines on reconditioning work, you'll find that "Clevelands" deliver the kind of performance that's necessary to meet today's requirements.

Several models, Diesel or Gasoline powered, to choose from. Let us *prove* to you how new, modern equipment will save you real money. We solicit your inquiry.

Complete the Job with—
"CLEVELAND" Model "90" PIPE LAYER and BACKFILLER

A new member of the "Cleveland" family, the Model 90, will lay pipe, backfill ditch, load or unload pipe, "snake in" loads by winch or drawbar.

Built from the crawlers up for just such service, it has already proven in the field, a machine of great utility and high capacity, when used for any of these purposes. Rapid, easy, field-conversion from one type of usage to another is designed in, not secured by "attachments."

Among its exclusive features is *one man, continuous operation in either direction* at backfilling speeds up to 52 feet per minute and at travel speeds up to 5½ miles per hour. Get the details today.

THE CLEVELAND TRENCHER COMPANY

20100 St. Clair Ave. *"Pioneer of the Small Trencher"* Cleveland, Ohio

One important "Cleveland" idea that adds to the versatility of performance is illustrated at the right—low cost transportation, at truck speed, via special trailer—"Clevelands" load or unload in 10 to 15 minutes.

CLEVELANDS

Rocky Mountain Area

By
T. R. INGRAM

Wildcat Location Planned in Eastern Chaves County, N. M.

DENVER, Colo., July 25.—The Continental Oil Co. had a good completion in the Leo sand in Lance Creek, Wyoming, in its No. 4 Apex-3, which made 1,570 bbls. the first 24 hours. Ohio Oil Co. No. 3 Hazlett, deep test at Allen Lake, was abandoned when formation was found dipping 70 degrees. D. D. Gibson No. 26 fee, in the Warm Springs district, bailed at the rate of 25 bbls. per hour. C. L. Price No. 2 Lamb, outpost well at Lance Creek, had water in the Dakota and was abandoned. Locations were made for a deep test on Mahoney dome, by the Sinclair-Wyoming Oil Co.; a shallow well in the Plunkett field by the Lincoln Oil & Gas Co.; for a 5,000-foot test on Dry Piney, Sublette County, by the Frontier Petroleum Co., and a Minnelusa test on West Mule Creek, Niobrara County, by the Fall River Royalty & Producers Co.

There were no completions or new operations in Colorado.

A small gas well was completed in the Glendive field in Montana, by the Montana-Dakota Utilities Co., and the Glacier Production Co. had a 3,000,000-foot well in Cut Bank. There was one new location in Kevin-Sunburst and the California Co. released location for its wildcat in Teton County. The Sha-Wa Petroleum Co. will test the Black Butte structure in Petroleum County.

NEW MEXICO

The three-county corner area of southeastern New Mexico, including neighboring sections of Chaves, Lea and Roosevelt counties, is due for considerable exploration in the near future, according to R. M. Baker, Roswell operator. He has assembled a 15,000-acre block on government permits in Township 10s-30e, and announced location for No. 1 Hiram M. Dow, SW SW SW section 21-10-30, Chaves County, north of the main Roswell-Tatum highway. A 4,000-foot test to the Hobbs horizon is planned. Elevation is 4,120 feet at the location, with a structural dip of 141 feet within 3 miles to the southwest, along the regional fold of the Hobbs high. Pure Oil Co. has 10 sections in fee lease in Township 11-31e, adjacent to and south of the Baker block. N. A. Hightower, Roswell operator, is reported to have assembled a block of government permits in Township 11-30e, and to have made location for a test in NE NE section 28-11-30, some 6 miles south of the Baker location. About 1½ years ago Vierson & Brown drilled a test in section 14-11-32, in northwestern Lea County, to 5,026 feet, and found good formations but no porosity. Some big companies held protection acreage and contributed bottom-hole money to that test.

Completions of the week in Lea County included the following:

Magnolia Petroleum Co. No. 6 State-Bridges, C SW NW section 23-17-34, Vacuum area, topped pay at 4,615 feet, total depth 4,755 feet, and pumped 142 bbls. of oil in 24 hours, initially.

Same company's No. 9 State-Bridges, C SE SW section 13-17-34, Vacuum pool, had initial yield of 96 bbls. of oil daily through tubing from pay topped at 4,581 feet, total depth 4,682 feet.

Gulf Oil Corp. No. 4 Stuart, C NW NE section 10-25-37, Langlie district, found pay at 3,330 feet, was bottomed at 3,430 feet, and had natural production of 198 bbls. of oil daily, with 248,000 feet of gas.

J. M. Rush No. 2 Wantz, C NW SW section 21-21-37, Hardy area, produced 85 bbls. of oil and 1,050,000 feet of gas daily from pay found at 3,700 feet, total depth 3,775 feet.

Skelly Oil Co. No. 7 Coates, C NW SW section 3-24-36, Cooper field, had top of pay at 3,565 feet, total depth 3,642 feet, and flowed 100 bbls. of oil in 24 hours initially, with 2,000,000 feet of gas.

Texas Co. No. 2-A Cagle, SW NE NW section 9-26-37, Jal district, had initial daily production of 256 bbls. of oil. It found pay at 2,840 feet and was bottomed at 3,060 feet.

Two States Oil Co. No. 1-B Cole, C NE NE section 16-22-37, Penrose area, topped pay at 3,654 feet, total depth 3,698 feet, and produced 240 bbls. of oil initially, accompanied by 228,000 feet of gas.

Lea County

Addison Oil Co. No. 3 Knight, C NE NW sec. 27-24-37. W.O.C. 142 ft.
Amerada Pet. Corp. No. 3 State, C NE SW sec. 23-17-34. Drlg. 3,895 ft.
Anderson-Prichard Oil Corp. No. 2 Carlson-Harrison, NW NE SE sec. 22-25-37. Drlg. 2,750 ft.
Anderson-Prichard Oil Corp. No. 1 Stuart, C W½ SW NE sec. 10-25-37. T.D. 3,290 ft.; drlg. plug.
Cities Service & Repollo No. 3 Brunson, C SW SE sec. 4-22-37. T.D. 2,556 ft.; P.B. 525 ft. to straighten hole.
Continental Oil Co. No. 2 Britt B-15, C W½ SW NW sec. 15-20-37. Drk.
Continental Oil Co. No. 1 Elliott, C NE NE sec. 17-22-37. Drlg. 3,090.
Continental Oil Co. No. 1 Jack A-29, NE NE NE sec. 29-24-37. W.O.C. 243 ft.
Continental Oil No. 6 Reed, NE SW SE sec. 23-20-36. Drk.
Continental Oil Co. No. 1 State I-7, NE NW NE sec. 7-17-34. Drlg. 1,645 ft.
Continental Oil Co. No. 1 State K-29, C SW SW sec. 29-16-37. Coring 4,905 ft.; no show.
Continental Oil Co. No. 4-E-17 State, C SW NW sec. 17-22-36. T.D. 3,880 ft.; P.B. 3,817 ft.; F. 2½ B.O.P.H., 50% wtr.
Culbertson & Irwin No. 1 Dabbs, NE NE NW sec. 35-25-37. T.D. 3,331 ft.; F. est. 5 B.O.P.H.; 3,000,000 gas, rng. tbg.
Culbertson & Irwin No. 1 Henry, C N½ NW SW sec. 26-25-37. Drlg. 3,257 ft.
Culbertson & Irwin No. 3 Liberty, C N½ NW SW sec. 3-25-37. T.D. 3,468 ft.; Reran 2-inch, 3,427 ft., S.D.O.
Great Western Prod. Co. No. 1 Leonard, C SE NE sec. 32-23-37. Rng. csg. 192 ft.
Great Western Prod. Co. No. 1-C State, C NE SW sec. 7-19-37. T.D. 4,081 ft.; P.B. 4,070 ft.; F. 60 B.O.P.D.; top pay 3,905 ft.; to acdz.
Gulf Oil Corp. No. 1 Alley, C NE SE sec. 10-23-37. TD. 3,713 ft.; P.B. 3,688 ft.; S.D.O.
Gulf Oil Corp. No. 2-D Kutter, C SE SW sec. 8-19-37. T.D. 4,155 ft.; P.B. 4,100 ft.; C.O. at 4,040 ft.; also fsg. bit.
Gulf Oil Corp. No. 5 McCormack, C SW NE sec. 32-21-37. T.D. 3,610 ft.; W.O.C.
Gulf Oil Corp. No. 1-E Mattern, C NW SW sec. 1-22-36. Drlg. 2,486 ft.
Gulf Oil Corp. No. 3 Ramsey, C SW SE sec. 35-21-36. T.D. 3,780 ft.; F. 25, 40 B.O.P.H. with 750,000 ft. gas.
Humble O. & R. Co. No 6 Fopeano, C NE NE sec. 35-20-36. Drk.
Magnolia Pet. Co. No. 2 Brunson-Argo, C NE NE sec. 9-22-37. T.D. 3,492 ft.; fsg.
Magnolia Pet. Co. No. 1 Corrigan, C SW SE sec. 33-21-37. Drlg. 3,155 ft.
Magnolia Pet. Co. No. 1-L State, C SE SW sec. 21-17-35. Drk.
Magnolia Pet. Co. No. 11 State-Bridges, C SE NW sec. 25-17-34. T.D. 4,720 ft.; shot and C.O.
Magnolia Pet. Co. No. 12 State-Bridges, C SE SE sec. 26-17-34. W.O.C. 4,125 ft.
Magnolia Pet. Co. No. 13 State-Bridges, C SW NW. R.U.R.
Magnolia Pet. Co. No. 14 State-Bridges, C SW NE. C.&P.
Maljamar O. & G. Co. No. 10 Baish, C SW NW sec. 20-17-32. T.D. 4,006 ft.; fsg. swab.
Maljamar O. & G. Co. No. 11 Baish, C NW NW sec. 22-17-32. Drlg. 2,761 ft.; S.O. 2,442-52 ft.
Maljamar O. & G. Co. No. 4 Mitchell, C NE NE sec. 20-17-32. T.D. 4,097 ft.; acdz. and no results; to retreat.
Maljamar O. & G. Co. No. 5 Mitchell, C NW NW sec. 19-17-32. Drlg. 3,944 ft.; broken shows from 3,655 ft.
Jas. A. Mascho No. 2 Cloyd, C SW SW sec. 20-22-33. Drlg. 2,205 ft.
C. T. McLaughlin No. 1 Polhamus, NE sec. 9-24-37. T.D. 3,672 ft.; S.D.O.
Mid-Continent Pet. Corp. No. 3 Marshall, SW SW SW sec. 12-21-36. Coring 3,820 ft.
Ohio Oil Co. No. 2 State-McCallister, C NE SW sec. 25-17-34. Drlg. 1,885 ft.
Olean Pet. Co. No. 1 Ferrel, C NE SE sec. 22-22-37. R.U.S.T.
Parker Drlg. Co. No. 2 Irwin, C W½ NW SW sec. 35-24s-37. T.D. 3,481 ft.; hole caving; C.O.
Parker Drlg. Co. No. 1-A State, C SW SW sec. 21-22-37. Drlg. 230 ft.
Penrose & Rowan No. 1 Christmas, SE cor. sec. 28-22-37. W.O.C. 3,390 ft.
Lem Peters No. 2 L. J. May, C W½ SE SE sec. 27-22-37. Drlg. 3,290 ft.
Phillips Pet. Co. No. 3 Santa Fe, C SW NW sec. 5-18-35. C.&P.
Phillips Pet. Co. No. 7 Santa Fe, C SE SW sec. 27-17-35. T.D. 3,157 ft.; drlg. 1,746 ft.; new hole.
Phillips Pet. Co. No. 8 Santa Fe, C NW NW sec. 5-18-35. Drlg. 3,510 ft.
Phillips Pet. Co. No. 9 Santa Fe, C SE SE sec. 21-17-35. Drlg. 478 ft.
Repollo Oil Co. No. 2 Hair, NW SW NW sec. 9-24-37. T.D. 3,380 ft.; shut in.
Repollo Oil Co. No. 2 Turner, SW NE SW sec. 29-21-37. Drlg. 2,915 ft.; S.G.&O.
Repollo Oil Co. No. 5-B Whitten, NW NW NE sec. 4-24-36. T.D. 3,725 ft.; P.B. 3,639 ft.; reshot and C.O.
Republic Prod. Co. No. 2 State, C SW SW sec. 32-17-35. W.O.C. 280 ft.
Rowan & Nichols No. 1 State, C NE NW sec. 22-10-37. Drlg. 4,857 ft.
J. M. Rush No. 2 State, NW NW SE sec. 20-20-37. Drlg. 3,578 ft.; S.G.
Harry J. Schafer No. 1-A State, C E½ NW NE sec. 26-20-36. T.D. 3,865 ft.; swb. some oil; P. B. 3,845 ft.; S.I.
Shasta Oil Co. No. 2 Woolworth, NE NW NW sec. 28-24-37. T.D. 3,155 ft.; R.U.R.
Shell Pet. Corp. No. 4-E State, C SW NW sec. 12-20-36. Drlg. 3,800 ft.
Shell Pet. Corp. No. 3-A State, C SE NE sec. 31-17-35. Drlg. 3,977 ft. S.G.
Shell Pet. Corp. No. 1-D State, C SW SW sec. 31-17-35. Drlg. 3,086 ft.
Shell Pet. Corp. No. 1-G State, C SE SE sec. 22-17-34. R.U.R.
Shell Pet. Corp. No. 3-H State, C W½ SE NE sec. 13-21-35. Drlg. 2,747 ft.
Shell Pet. Corp. No. 1 Swigart, C NE SE sec. 25-17-34. Loc.
Shell Pet. Corp. No. 1 Whitten, C S½ SE NE sec. 33-23-36. Rng. csg. 3,600 ft.
Stanolind O. & G. Co. No. 3-A Hill, SE SE NW sec. 6-21-37. T.D. 3,770 ft.; F. 15 B.O.P.D., 1,000,000 ft. gas; to D.D.
Stanolind O. & G. Co. No. 4-B Langlie, C NW SW sec. 14-25-37. Drlg. 387 ft.
Stanolind O. & G. Co. No. 5-B Myers, C NE SW sec. 9-24-37. T.D. 3,530 ft.; drlg. cement.
Standard Oil Co. of Texas No. 1 State, C SW NW sec. 32-17-35. T.D. 4,610 ft.; to make D.S.T.
So. Pet. Exploration Co. No. 3 Downes, C NE SW sec. 32-21-37. R.U.R.
Texas Co. No. 3 Black, C NW NE sec. 21-24-37. T.D. 3,600 ft.; C.O.
Texas Co. No. 4 Black, C SE NW sec. 21-24-37. C.&P.
Texas Co. No. 1 Corbin, C NW SW sec. 10-18-33. T.D. 5,117 ft.; P.B. 4,259 ft.; R.U. pumping unit.
Texas Co. No. 3-A Falby, C SE NW sec. 8-22-37. R.U.R.
Texas Co. No. 3 J. S. Lea, SW NE SW sec. 14-20-34. Drlg. 2,760 ft.
Texas Co. No. 2 Smith-Fanning, C NW NE sec. 4-26-37. Loc.
Texas Co. No. 1-N State, C SW SW sec. 30-17-35. C.O. to 4,747 ft.; P.B. 4,700 ft.; fsg.
Texas Co. No. 2-D State, C SW NW sec. 27-17-34. Drlg. wtr. well; T.D. 4,860 ft.; swb. 1½ B.O.P.H.; acdz. and C.O.
Texas Co. No. 1-Q State, C SE SE sec. 25-17-34. T.D. 4,725 ft.; swbg. to test.
Texas Co. No. 4-O State, C NE SE sec. 36-17-34. Drlg. 3,859 ft.; S.G.
Texas Co. No. 5-O State, C SE NW sec. 36-17-34. Drlg. 3,850 ft.; S.G.
Texas Co. No. 6-O State, C NW SE sec. 36-17-34. Drlg. 3,417 ft.; S.G.
Texas Co. No. 1-R State, C NE NE sec. 6-18-35. T.D. 1,548 ft.; cmtg.
Texas Co. No. 2-R State, C NW NE sec. 6-18-35. Drlg. 3,560 ft.
Tide Water Assoc. Oil Co. No. 1-L State, C NE NW sec. 23-12-36. Drk.
Warren L. Todd No. 1 Lemon, C NW SW sec. 17-21-32. O.W.D.D.; O.T.D. 3,752 ft.; to D.D.
Twin Oil Co. No. 2 Joyce-Pruitt, C SE SE sec. 31-21-37. Drlg. 3,110 ft.
Twin Oil Co. No. 2 Corrigan, C NE NE sec. 4-22-37. Drlg. 1,265 ft.
Twin Oil Co. No. 1 State, C SW SW sec. 22-17-35. Drk.
Two States Oil Co. No. 3-B Cole, C SE NE sec. 16-22-37. Drk.
Two States Oil Co. No. 1 Hill, C SW SW sec. 31-20-38. W.O.C. 3,530 ft.
Weier Drlg. Co. et al No. 1 Woolworth, NE NE SW sec. 28-24-37. T.D. 2,975 ft.; prep. to cmt. off junk.
Sam Weiner No. 1 Smith, NE cor. sec. 4-25-37. Drlg. 3,214 ft.
Weiner No. 1 Parcell, C SW NE sec. 8-23-28. T.D. 4,498 ft.; S.D.O.
Western Gas Co. No. 1 Matkins, C SE SE sec. 15-23-26. T.D. 3,853 ft.; P.B. 3,642 ft.; W.O.C.

Eddy County

F. E. Baker No. 1 Eddy, NE sec. 12-22-27. T.D. 2,410 ft.; S.D.O.; W.I.H.
Danciger O. & R. Co. No. 1-B Turner, CEL NE SE sec. 17-17-31. Loc.
D. & B. Oil Co. No. 3 Jenkins, NE NE NW sec. 20-17-30. T.D. 3,300 ft.; acdz. and S.I.
Dominion O. & G. Co. No. 2 Johnson, C SE NE sec. 35-16-31. Drlg. 400 ft.
English & Harmon No. 1 Dougherty, NE NE SW sec. 3-17-27. T.D. 1,050 ft.; drlg. by tools.
Etz Bros. No. 5 State, SE NE SE sec. 16-17-30. R.U. and S.D.
Franklin Pet. Corp. No. 1 McIntyre, NW NE SE sec. 20-17-30. T.D. 555 ft.; drlg. plug.
C. J. Frederick No. 1 Reed, C NE SW sec. 28-24-28. T.D. 2,770 ft.; S.D.O.
F.W.&Y. Oil Co. No. 3 Jackson, C NW SE sec. 13-17-30. T.D. 2,953 ft.; fsg.
Fullerton Oil Co. No. 1-A Johnson, C SE NW sec. 35-16-31. W.O.C. 45 ft.
Graybury Oil Co. No. 12 Burch, NW NW SE sec. 19-17-30. R.U. and S.D.

H. A. Hartwell No. 1 Vandagrift, NE NE SE sec. 8-18-27. T.D. 2,085 ft.; P.B. 2,072 ft.; prep. to pump.
R. L. Holcomb No. 1 State, NW sec. 22-17-28. T.D. 1,980 ft.; S.D.O.
C. F. Ingram No. 1 Page, NE NE SW sec. 15-21-28. Drlg. 2,171 ft.
F. G. Keyes No. 2 State, C SE NE sec. 9-17-28. Drlg. 910 ft.
Harry Leonard No. 1 Texas, NW NW NE sec. 36-16-31. Drlg. 2,344 ft.
Nash, Windfohr & Brown No. 5-A Stevens, C SE SW sec. 13-17-30. Drlg. 2,970 ft.
Paton Bros. No. 2 Ginsberg, C SE SE sec. 8-18-31. T.D. 3,172 ft. sd.; est. 70-100 B.O.P.D.; S.I. for storage.
Premier Pet. Co. No. 1-B Maddren, NW SW SW sec. 27-17-30. Drlg. 3,265 ft.
Repollo Oil Co. No. 4-A Parke, NW SE NW sec. 22-17-30. Drlg. 3,128 ft.
Repollo Oil Co. No. 3 West, NE NE NE sec. 3-17-31. Loc.
Rudco O. & G. Co. No. 5 Yates, C NE NW sec. 33-18-28. T.D. 2,759 ft.; pay 2,726-35 ft.; bailed 10 B.O.; to shoot.
V. P. Welch No. 1 Lewis, SE SW SE sec. 5-16-28. Drlg. 2,475 ft.
Western Drlg. Co. No. 2-A Western, SE SE NW sec. 23-17-29. Drlg. 1,505 ft.; S.G. at 1,412 ft.
Neil H. Wills No. 2 Stovall-Wood, SE SE NW sec. 20-20-30. Drlg. 45 ft.
Yates-Dooley No. 1 Creek, C SW NE sec. 35-18-30. T.D. 565 ft.; rng. csg.

Chaves County

E. J. Fisher No. 1 Foster, C NW NW sec. 7-15-26. T.D. 862 ft.; W.O.C.
Grastorf & Caudill No. 1 Smith, C NE NE sec. 1-4s-29. Wildcat; new hole; drlg. 3,390 ft.
Interstate Minerals, Inc., No. 1 Dunigan, NW cor. sec. 15-15-30. T.D. 3,265 ft.; F. 50 B.O.; shot & F. 182 B.O. in 22 hrs.; S.I. storage.
J. & L. Drlg. Co. No. 2 Hurd, SW sec. 11-11-26. T.D. 1,000 ft.; prep. to D.D.

Colfax County

Winston Marks No. 1 State, SE NW sec. 5-25-24. Set 12½-in. csg. 1,200 ft.; drlg.

De Baca County

James D. Ward No. 1 Summers, NW NE SW sec. 17-4n-20. T.D. 260 ft.; S.D.
N. F. Woods No. 1 Jones, C NE SW sec. 17-4n-20. T.D. 180 ft.; fsg.

Dona Ana County

Jules C. Bertrand No. 1 Casad Permit, sec. 24-26-5e. T.D. 47 ft.; S.D.O.

McKinley County

S. Dysart No. 1 Govt., NE sec. 14-14-10w. T.D. 1,390 ft.; fsg.

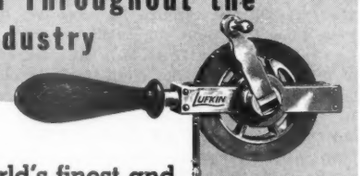
Otero County

Fred Turner, Jr., No. 1 Ella Everett, C SE SE sec. 34-22-13. Drlg. L. 3,713 ft.
Fred Turner, Jr., No. 1 H. V. Everett, SE SE sec. 28-22-13. S.D. 3,710 ft.

Quay County

H. H. McGee No. 1 Chapman, sec. 9-9-35e. Drlg. 1,000 ft.

LUFKIN
TAPES - RULES - TOOLS
Most Widely and Favorably Known Throughout the Oil Industry



The World's finest and most complete assortment of Steel Tapes for Tank Gaging, Strapping, Derrick and general measuring.

Also Metallic Woven Tapes, Folding Wood Rules, Aluminum Rules and Precision Tools.

See Lufkin Page in the Petroleum Register and the Composite Catalog.

SEND FOR CATALOG NO. 12

Specify LUFKIN
It's your assurance of the best in measuring devices.

THE LUFKIN RULE CO.
SAGINAW, MICHIGAN
106-110 Lafayette St., New York City

Roosevelt County

G. S. Peterson and Conquistadores Oil Co. No. 1 Good, NW SE SE sec. 28-5s-30. T.D. 980 ft.; S.D.

NORTHWEST NEW MEXICO

Bernalillo County

Norins Realty Co. Inc., No. 2 North Albuquerque, NE SE NW sec. 10-11n-4e. T.D. 3,750 ft.; C.O. to run 6⅝-in.

McKinley County

The Stanolind Oil & Gas Co. has sold its properties, including leases, wells and 8,000 bbls. of oil in storage, on the Hospah dome to the New State Oil Co., of which Glenn Atterbury was the representative in making the deal, according to the New Mexico Oil News. Consideration was reported to be $275,000, of which $25,000 was cash and the remainder to be paid out of production. The discovery well was drilled by the Midwest Refining Co. in 1927 in its No. 1 Hancock, SE NW section 1-17n-9w, and made 240 bbls. first 24 hours from a sand in the Mesa Verde at 1,561 feet after plugging back from the Dakota, which contained water, at 3,282 feet. Twelve wells have been drilled in the area, of which three developed commercial oil and one had a show. The wells have been shut in for a long time for lack of an outlet. Several years ago a concern had an option on the property and made surveys for a pipe line to Thoreau, on the Atchison, Topeka & Santa Fe railroad, 40 miles to the southwest, but the line was not built. The new interests have made a location for the first well on top of the structure between two of the producers. It is reported that they will build a small refinery to handle the crude. The oil has a gravity of 29.7 degrees on the A.P.I. scale, with a sulfur content of 0.15 per cent. The principal product to be produced will be diesel fuel oil.

New State Oil Co. No. 1, NE NE NW sec. 1-17n-9w. M.I.M.
Claude Walker No. 7 fee, SW SW SE sec. 20-20n-9w. Drlg. 250 ft.

Rio Arriba County

Continental Oil Co.-L. M. Hughes No. 1 Esquibel, unsurveyed, near Chama, approx. 28n-4e. R.U.C.T.
Oil City Pet. Co. No. 1 Azotea, SW SW NE sec. 11-31n-2e. Spdg.

San Juan County

Continental Oil Co. No. 77 Rattlesnake, NE NE NE sec. 2-29n-19w. Drlg. 832 ft. in sd.
Goodrun & Vincent No. 2 Goodrun, SE SW NE sec. 23-29n-11w. T.D. 30 ft.; W.O. csg.
Al Greer No. 2 fee, SW SE SW sec. 10-30-11w. S.D. 660 ft. for 10-in.
Anna Oil Corp. No. 6 Govt., SW NE NE sec. 33-30n-11w. Drlg. 1,900 ft.

Socorro County

Central New Mexico Oil Co. No. 1 Belen Gr., SE NW sec. 16-3n-1e. T.D. 2,965 ft.; (C.D.); C.O.

Torrance County

Woolston Bros. No. 1 Garland, NE SE NE sec. 32-7n-7e. R.U.
Estancia Valley Carbon-Dioxide Dev. Co. No. 1 Crawford, SE NE NE sec. 32-7n-7e. Drlg. 950 ft.

Valencia County

Old Spanish Grants, Inc., No. 1 San Clemente, C SE SW sec. 23-7n-1e. R.U.R.
C. A. Grober et al No. 1 Fuqua, NE NE sec. 19-5n-3e. T.D. 900 ft.; R.U.R.

COLORADO

Archuleta County

Boone Dev. Co. No. 1 Newton, SE NW SE sec. 18-33n-1e. T.D. 303 ft.; W.O. 10-in.
Pagosa Oil & Dev. Co. No. 1 Macht, C sec. 32-36-1w. T.D. 1,520 ft. in Mancos sh.; pulling 6-in. to S.R.; S.O. in several stray sds. 1 ft. or more thick.

Fremont County

Stanley Thomas No. 1 Rickwalt, SE SE sec. 2-19s-70w. Drlg. 1,250 ft.; S.O. 1,215 ft.

Garfield County

Roaring Fork Oil Co. No. 1 Patterson, C NE sec. 36-7s-88w. Res. 875 ft.

Grand County

Interstate O. & R. Co. No. 1 Hinman, NE SE NW sec. 11-2n-81w. S.D. 3,920 ft.; will D.D. to Morrison.

Huerfano County

J. G. Tompkins & Sons No. 1 Pressey, NE NE NE sec. 10-29s-69w. S.D. 411 ft.; (prospecting for coal).
S. W. Pressey No. 2 Alamo, C SW SE sec. 3-27s-68w. S.D. 1,320 ft.

LaPlata County

N. Spatter No. 1-X Bryce, SE SW SW sec. 31-33n-9w. Drlg. below 1,200 ft.

Mesa County

Continental Oil Co. et al No. 1 Miller, SW SW NW sec. 36-8s-91w. Drlg. gr. sh. and strks. of sd. 4,899 ft.

Moffat County

Stanolind O. & G. Co. No. 3-D Shaw, NW NE NE sec. 27-4n-92w. T.D. 3,517 ft.; top Triassic beds 3,508 ft.; cmtd. 7-in. lnr. through Sundance; perf. at 3,262-3,508 ft.; tstg.
Morapas Pet. Corp. No. 1 Coles, SW SW SE sec. 1-3n-92w. S.D. 2,750 ft. for 8¼-in.
C. R. Privett No. 1 Sutton, NE NE SW sec. 1-5n-96w. Drlg. 500 ft.

Montezuma County

McElmo Oil Co. No. 1 West, NE NW NW sec. 31-36s-17w. Drlg. 4,666 ft.

MODERN OFFICES REASONABLE

LOCATED in the HEART of the OIL CAPITAL
The R. T. DANIEL BUILDING
TULSA, OKLA. Geo. T. Cummings, Mgr.

PARSONS DITCHERS

The biggest dollar value on the market today

PARSONS DITCHERS are available in new or rebuilt, full or semi-crawler mounting in sizes to meet practically every trench specification.

The Pipe Line Special, Model 35 illustrated, ideally fulfills your requirements on pipe line projects. Entirely enclosed gearing, alloy steels, and anti-friction bearings, together with many patented features assures Parsons users more dependable and more economical operation.

Write now for more detailed information. We'll move the earth to serve you.

THE PARSONS COMPANY
Newton, Iowa

Park County

South Park Oil Co. No. 1 Lemar, NE NE SE sec. 34-11s-75w. Drlg. 5,957 ft.; fighting caves.

Prowers County

Continental Oil Co. No. 1 Ruby, C NE NW sec. 31-21s-44w. Drlg. Miss. 4,988 ft.; top Penn 2,990 ft.

Pueblo County

Eden O. & G. Co. No. 1 Horse Creek, SW SE sec. 29-19s-64w. Spdg.

C. E. Puckett No. 1 Barber, NW sec. 35-21s-66w. S.D. in sh.&L. 630 ft.

Rio Blanco County

Buford Oil Co. No. 1 Govt., C SW SW sec. 16-1n-91w. T.D. 2,430 ft.; rng. 8¼-in. to set on bttm.

Routt County

Steamboat Springs Drlg. Synd. No. 1 Brown, C NW NE sec. 1-6n-86w. Spdg.

Craig & Moore No. 1 Erwin, C SW NE sec. 33-7s-85w. T.D. 1,042 ft.; U.R. 10-in. to set on bttm.

Weld County

R. M. Franks, vice president of the Ramsey Petroleum Co., who was in eastern Colorado recently attending to some lease matters, was quoted while in Greeley as saying that the company intends to move in equipment this fall and clean out and test its No. 1 St. Anthony, SW NE SE section 15-7n-59w, in the Buckingham district, and will then drill another well. The St. Anthony well has been somewhat of a mystery since it was completed in December, 1932. It was drilled to 6,790 feet, where it had water in the Dakota, and was plugged back and completed in the Muddy at 6,680-6,700 feet for 6,000,000 feet of gas per day. The well showed for 40 bbls. of oil the first 24 hours in the Dakota at 6,768-74 feet, but went into water upon drilling deeper. After plugging back it was shut in. Only eight sacks of cement was used in plugging off the bottom water. At intervals since then it has been reported that the well was standing full of oil and other reports were to the effect that water had broken through the plug and drowned out the gas. It is understood that the company will go into the hole, give it a thorough swabbing test and determine its exact condition. In 1933 a dry hole was drilled on the west side in its No. 1 Scriven. Leases were retained on the east side, where the third test will be drilled, the location to be determined after No. 1 St. Anthony is again tested.

WYOMING

Albany County

Murphy Oil Co. No. 13 Holst, SE SW NE sec. 13-17n-77w. T.D. 3,356 ft., 6 ft. in Morrison; tstg. Dak. sd.

Big Horn County

A. L. Rankin No. 1 Karjala-Rankin, C SW NW sec. 10-54n-94w. Drlg. 190 ft.

Prescott & Mileski No. 1 Govt., NE NW SW sec. 15-1n-93w. S.D. 550 ft.

Clifford S. Johnson No. 1 Johnson, CEL NW NW sec. 24-51n-93w. Rig; W.O. engine.

Joan Oil Co. No. 1 Howell, NE NW NE sec. 32-55n-97w. Drlg. 2,470 ft.

Carbon County

The Sinclair-Wyoming Oil Co. has made a location for an important deep test on the Mahoney dome in its No. 3 Mahoney, C SE NW section 34-26n-88w. Contract has been let to Manning & Martin, Inc. There has been no drilling on Mahoney dome for several years. The structure produces gas in the Dakota and Sundance and some oil was found in two wells. In 1929 the old Producers & Refiners Corp. drilled a deep test in the same 40 as the new location, but had a bad hole and did not go below 4,698 feet where it pumped 70 bbls. initial of 35-gravity oil. It was not considered a satisfactory test of the horizons below the Sundance.

The Ohio Oil Co. No. 3 A. J. Hazlett Estate, NE SW NE section 34-23n-79w, a test to the Tensleep on the Allen Lake gas structure, was abandoned at 4,359 feet without obtaining satisfactory results. It topped the Tensleep sand at 3,864 feet and was drilled to 4,359 feet. Seventy-degree dips were encountered in the sand.

Sinclair-Wyoming Oil Co. No. 3 Mahoney, C SE NW sec. 34-26n-88w. Loc.; deep test; (first report).

Ohio Oil Co.-California Co. No. 3-A Kyle, C SW NE sec. 26-21n-79w. Drlg. 6,055 ft.

Producers Oil Co. No. 1 Lake Valley, 200 ft. S of CNL sec. 14-20n-88w. Drlg. 1,916 ft.

Converse County

Wyshawn Oil Co. No. 2 Lindley, C SW SW sec. 35-32n-69w. T.D. 500 ft.; fsg.

Sand Creek Oil Co. No. 1 Probesh, NW SW SE sec. 29-32n-69w. T.D. 633 ft.; prep. to test.

Fred Bunker No. 1 Pestal, SE NE NE sec. 32-32n-69w. Drlg. 200 ft.; 10-in. at 170 ft.

New Era Fuel Co. No. 2 Mary Gasper, CNL NW SW sec. 25-32n-69w. Est. 50 B.P.D. from sd. in base White River at 655-70 ft.; W.O. pmp.

Wyshawn Oil Co. No. 1 Lindley, NW SE SE sec. 34-32n-69w. T.D. 1,500 ft.; fsg. bailer.

Fremont County

The Lincoln Oil & Gas Co. has made a location for its No. 1 Shoshone, NW NW SE section 23-1s-1e, in the old Plunkett field. Last March Indian leases on 480 acres in this section were sold for bonuses aggregating $2,925 to H. P. Cozad, Lincoln, Neb.; H. P. Coolidge, Great Falls, Mont.; Mike Wolf, J. A. Decker and W. H. Connor, of Lander.

Lincoln O. & G. Co. No. 1 Shoshone, NW NW SE sec. 23-1s-1e. Spdg. 20 ft.; (first report).

Tropic Oil Co. No. 1 Govt., C SE SW sec. 34-27n-90w. Drlg. 3,368 ft.

Consolidated Oil Properties No. 3 Ewart, C SW SE sec. 16-1n-1w. Drlg. 834 ft.

Ben Stewart No. 1 Darnell, NE SE sec. 26-3n-1w. S.D. 2,245 ft. for 7-in.

Hot Springs County

D. D. Gibson had a surprise well in his No. 26 fee, SW NW SE section 35-43n-93w, on the west dome of the old Warm Springs field, 13 miles east of Thermopolis, which bailed at the rate of 25 bbls. an hour from the Embar at 1,059-63 feet. Only casing in the hole was 40 feet of 15½-inch. Casing will be run and recemented before additional test is made. The field has been producing around 140 bbls. of heavy black oil a day from 14 wells. Gibson purchased the field in its entirety recently from the C. B. Shaffer interests of Chicago, when he acquired the Fern Oil Co. refinery at a receiver's sale. The refinery resumed operations July 1 as the Tri-State Refining Co.

Italo Pet. Co. No. 1 Skelton-Govt., SE SW NE sec. 13-44n-98w. T.D. 300 ft.; R.U.C.T.

J. W. Bailes No. 1 Govt., SE SW sec. 28-43n-93w. T.D. 1,082 ft.; P.B. to 1,015 ft.; tstg.

D. D. Gibson No. 26 fee, SW NW SE sec. 35-43n-93w. T.D. 1,063 ft.; tstg.

California Explr. Co. No. 1 Govt., NE SE NE sec. 12-44n-97w. T.D. 4,100 ft. in Embar L.; tstg. W.S.O. after rng. sqze. job.

Lincoln County

H. C. Harris et al No. 1 Govt., SE NW NW sec. 23-21n-117w. Drlg. 640 ft.

Natrona County

The Stanolind Oil & Gas Co. No. 26 Wyoming Associated-T.P., C SE NW section 35-40n-79w, Salt Creek field, one of the series of Tensleep wells the company is drilling, was completed for 140 bbls. of oil and 70 bbls. of water per day at 4,002 feet, total depth. The 6⅝-inch was cemented at 3,996 feet and perforated opposite the Tensleep at 3,941-60 feet. It is being pumped.

General Pet. Corp. No. 1 State, NW NE SE sec. 16-35n-77w. Drlg. wtr. well at 470 ft.; M.I.M.

Stanolind O. & G. Co. No. 26 T.P.-Wyo. Asso., C SE SW sec. 26-40n-79w. Drlg. 3,900 ft. in L.; top Tensleep 3,892 ft.

Stanolind O. & G. Co. No. 8 T.P.-Midwest Oil, C NW SW sec. 35-40n-79w. Cellar and pits.

Niobrara County

The Continental Oil Co. received bids at its Ponca City office on July 18 for the construction of its projected 230-mile pipe line from the Lance Creek field to Denver, but up to this writing contract has not been awarded. The plans called for an 8-inch line as far as Cheyenne and a 6-inch line from Cheyenne to Denver. The Rocky Mountain Pipe Line Co., a Delaware corporation, has been formed with a capital of $1,500,000 to build and operate the line. Up to the present time it remains apparently and primarily a Continental project, but there is a possibility that other major interests may become associated with it. In 1936, when the Lance Creek production was held back for lack of a market, the Stanolind Crude Oil Purchasing Co. contracted for 5,000 bbls. per day from the field for a period of four years, this oil to be piped to the Stanolind Pipe Line Co.'s trunk line to Missouri, which was being revamped. The Lance Creek crude was to be mixed with crude from the Clayton tank farm near Douglas, which was to be moved to eastern markets through the trunk line. The Ohio Oil Co., through its subsidiary, the Illinois Pipe Line Co., built an extension from its Lance Creek line to Fort Laramie, a distance of 70 miles, to connect with the Stanolind line and oil has been moving for more than a year under this arrangement. It is understood that because of this situation, both the Ohio Oil Co. and the Standard Oil Co. of Indiana have made overtures to become participants in the arrangement to move Lance Creek crude to Denver. Frank O. Prior, president of the Stanolind company, was in Denver last week in connection with these matters, and it is understood conferences are being held at Ponca City and Findley, Ohio. Whether there will be any change in the lineup is not yet known.

There were two completions in Lance Creek, one a good producer in the deep pay and the other a dry hole. The Continental Oil Co. No. 4 Apex-2, NW NE SE section 34-36n-65w, for the account of the Buck Creek Oil Co., was completed at 5,499 feet and put 1,570 bbls. into the tanks the first 24 hours. It topped the Leo zone at 5,420 feet and the 7-inch was cemented on top of the saturated horizon at 5,449 feet. Elevation is 4,462 feet. It is an inside well on the east side.

C. L. Price No. 2 Lamb, C SE SW section 12-35n-66w, a mile to the southwest of the nearest producer and an important test, had water in the Dakota at 3,830 feet and was plugged and abandoned. On account of it running low, it was decided not to drill it down to the Minnelusa sands.

The Fall River Royalty & Producers Co. has started a test in the West Mule Creek field half a mile north of its No. 1 Morrell, which pumped 12 bbls. per day from the Minnelusa at 2,855 feet, total depth, when completed more than a year ago.

Fall River Royalty & Producers Co. No. 1 Govt., CSL SE SE sec. 35-40n-61w. Set 18 ft. of cond. pipe. (first report).

Reilly PIPE ENAMEL AND PRIMER
★ REILLY coatings can be relied upon for permanent protection of pipe lines and all exposed steel surfaces. Made from a coal tar base, REILLY Enamel forms an extremely tenacious bond with the metal and will not flow or sag at high temperatures nor chip or crack at low temperatures. Ask for literature.
REILLY TAR & CHEMICAL CORPORATION • Merchants Bank Building • INDIANAPOLIS, INDIANA

Continental Oil Co. No. 3 Apex-3, NW NE NW sec 34-36n-65w. R.U.R.
Minnelusa Oil Co. No. 2 H. & M., NW NE NE sec. 8-35n-65w. T.D. 5,497 ft. on top Leo sd.; good sat.: cmtd. 7-in. at 5,492 ft.; W.O.C.
H. D. Moore et al No. 1 Beregren, NW sec. 23-35n-63w. Drlg. in Sundance 937 ft.; top Morrison 587 ft.

Park County

Paul Stock No. 1 Bertha M. Rousseau, SE SE NE section 20-53n-101w, was completed for 10 bbls. per hour in the Embar at 4,809 feet, total depth. It was acidized with 500 and then with 2,000 gallons. Top of the Embar was at 4,735 feet and top of saturation 4,765 feet. While this is not the discovery well, it marks the beginning of the development of the field. Several years ago the Ohio Oil Co. completed two small wells on the structure, but afterwards abandoned them. The Stock well is on the east side of the anticline and is somewhere from 500 to 1,000 feet down structure. In former years some small production had been developed on the structure in shallow sands.

Ohio Oil Co. No. 1 Trans-Ark., CSL SW SW sec. 30-57n-98w. Drlg. 5,339 ft.
Valentine & Watson No. 1 Johnson, NE NE NE sec. 6-57n-99w. Drlg. 2,469 ft.
Resolute Oil Co. No. 2 State, C SW SW sec. 16-57n-101w. Drlg. 4,542 ft.
Continental Oil Co. No. 1 Northern Pacific, SE SE NW sec. 23-58n-98w. R.U.R.

Sublet County

The Frontier Petroleum Co. is letting contract for a 5,000-foot rotary test in its No. 1 Government, SE SE SW section 1-28n-114w, in the Dry Piney district, north and west of the La Barge field. The location is an offset to a well drilled in 1928 by the Utah Oil Refining Co., which went to 2,000 feet and then plugged back and completed in sand at 843-58 feet for 11 bbls. per day. Some of the major companies have large blocks to the south and east of this location and along the Green River.

Frontier Petroleum Co. No. 1 Govt., SE SE SW sec. 1-28n-114w. Loc. (first report).
Yellowstone Oil Co. No. 1, 200 ft. N of S line of the H. L. Budd ranch, SE SE sec. 31-31n-112w. Drlg. 100 ft.
Wyo. Pet. Corp. No. 1 Chas. Budd, C NE NE sec. 10-29n-113w. S.D. 250 ft.
Progressive Oil Co. No. 1 Haddenham, C NF SE sec. 21-28n-113w. Drlg. 832 ft.

Sweetwater County

Sinclair-Wyoming Oil Co. No. 33-A, SE SW SW sec. 11-26n-90w. T.D. 2,179 ft.; P.B. 1 ft. to S.O.W.; est. 30 to 50 B.P.D.

Uinta County

Stove Creek Oil Co. No. 1 Govt., C SE NW sec. 26-14n-119w. Res. at 1,400 ft.
Stove Creek Oil Co. No. 2 Govt., C SW NW sec. 26-14n-119w. Spdg. 30 ft. (first report).

Washakie County

The Wyoming Oil & Refining Co. No. 10-B Brome, C SE NE section 6-47n-90w, Hidden dome, was plugged and abandoned at 1,805 feet. It had water in the Dakota and Frontier. Top of latter was at 1,320 feet.

Weston County

Des Moines-Osage Oil Co. No. 15, SW SW SE sec. 30-46n-63w. R.U.R.
Geo. Keisling No. 1, NW NE NE sec. 35-46n-64w. R.U.
Wyoming O. & G. Co. No. 19, NW NW SE sec. 19-46n-63w. Rng. 8¼-in. through the Greenhorn.
Gose Oil Synd. No. 1, NE NE NE sec. 28-47n-63w. C.O. after landing 4¾-in. at 4,900 ft.
Osage Trust Co. No. 1, SE NW NE sec. 22-46n-64w. Drlg. in Spearfish r.b. 1,460 ft.
Howland & Seneker, NE NW SW sec. 13-46n-64w. S.D. 500 ft.
West Osage Oil Co. No. 3, SW SE NE sec. 15-46n-64w. Drlg. below 2,000 ft.
John Brorphy No. 1 George, SW SE NW sec. 26-48n-64w. T.D. 2,080 ft.; W.O. csg.

MONTANA

Carbon County

R. C. Tarrant is drilling a second well on the Roscoe dome about half a mile west of his No. 1, which drilled through a fault and is shut down at 2,230 feet to wait on the completion of No. 2. The first well had the top of the Frontier at 2,095 feet.

R. C. Tarrant No. 2, SE NW sec. 4-6s-18e. Drlg. 840 ft. in Claggett sh.
Henderson Prod. Co. No. 1-H-11 Elk 11, SE SE NW sec. 35-9s-23e. S.D. 1,810 ft.
R. C. Tarrant No. 2 Heare, NW SE NW sec. 14-6s-19e. S.D. 1,780 ft.; chg. to rotary.
Sha-Wa Pet Co. No. 1 Govt., SW NW NE sec. 35-9s-23e. S.D. 3,124 ft.
Miracle Oil Co. No. 2 Govt., CWL NE SE sec. 3-6s-23e. S.D. 2,381 ft. (C.D.)

Dawson County

Frank C. Hughes No. 1 fee, NW NE SE sec. 5-14n-55w. Drlg. 1,095 ft.

Fallon County

The Montana-Dakota Utilities Co. No. 35-Unit 7, C SW section 9-6n-60e, Glendive gas field, was completed at 1,096 feet for 1,120,000 feet of gas per day with a rock pressure of 175 pounds. The 6⅝-inch was cemented at 910 feet.

Montana-Dakota Utilities Co. No. 45-Unit 7, SE NW SW sec. 15-6n-60e. Drlg. 190 ft. (first report).

Fergus County

Baughman & Singley No. 1 Skaggs, C NW SW sec. 7-15n-20e. Drlg. 1,087 ft.

Glacier County

One well was completed in the Cut Bank field in the Glacier Production Co. No. 1 Thomas Unit, 660 feet S of C section 14-35n-5w, an inside well in the gas area. It gauged 3,000,000 feet initial, open flow, from the Cut Bank sand at 2,732-80 feet. Total depth 2,782 feet.

The Texas Co. No. 9 Unit 6, C NW NW section 9-32n-5w, reported a completion last week, is making 70 bbls. per day on the pump.

A. R. Pardue No. 1 Tribal-171, SE SE SW sec. 7-32n-5w. Drlg. 440 ft.; Colo. 375 ft.; 10¾-in. 400 ft.
Glacier Prod. Co. No. 3 State, NW NE NW sec. 16-33n-5w. Drlg. 405 ft.
Santa Rita O. & G. Co. No. 1 State, NW NW SW sec. 36-34n-6w. M.I.M.
Santa Rita O. & G. Co. No. 3 Lander, C S½ SE sec. 16-35n-6w. Loc.
Texas Co. No. 2 Curran, C NW NE sec. 8-32n-5w. Cmtd. 10¾-in. at 621 ft.; W.O.C.
Glacier Prod. Co. No. 3 Bonnett, CSL NW SW sec. 4-32n-5w. Cmtd. 7-in. at 2,920 ft.; W.O.C.
Nadeau Bros. No. 5 Farmers State Bank, CEL SE NE sec. 17-33-5w. T.D. 2,820 ft.; C.O. 2,300 ft.
Texas Co. No. 3 Hardwick, C NE NE sec. 17-32n-5w. Drlg. 2,400 ft.
Santa Rita O. & G. Co. No. 3 Ritchie, SE NW SW sec. 5-33n-5w. Drlg. 2,780 ft.; 200 ft. oil; 7-in. 2,773 ft.
A. E. Wilkinson No. 3 Allotted-111, C NW SW sec. 31-33n-5w. Drlg. 2,850 ft.

Park County

Ben W. Ryan et al No. 1 Burgess, SE SW NW sec. 28-2s-11e. Drlg. 1,550 ft.

Petroleum County

The Sha-Wa Petroleum Corp. has begun a test on the Rattlesnake Butte structure, 12 miles southwest of the Cat Creek field, in its No. 1 Austed, SW NW SE section 22-13n-28e. It is located in a fault block and starts 200 feet below the top of the Claggett shale. The first Cat Creek sand is expected at 2,200 feet.

Sha-Wa Pet. Corp. No. 1 Austed, SW NW SE sec. 22-13n-28e. Drlg. 210 ft. in 15½-in. hole. (first report).
O. B. Canfield No. 2 Govt., SE NE NE sec. 21-17n-24e. T.D. 775 ft.; fsg.

(Continued on Page 230)

THE FIRST NATIONAL

FROM IT'S *first discovery*
in the SOUTHWEST

EXPERIENCE TO SERVE YOUR OIL FINANCING REQUIREMENTS

DIRECTORS
B. F. BARNETT, Vice President
J. P. BYRD, JR., Vice President
M. M. DOAN, Oil Investments
F. L. DUNN, Executive Vice President
A. L. FARMER, Real Estate
H. N. GREIS, Oil Producer
JOHN D. MAYO, Mayo's, Incorporated
R. OTIS McCLINTOCK, President
F. B. PARRIOTT, Oil Producer
W. G. SKELLY, President, Skelly Oil Company
ELMO THOMPSON, Vice President

THE FIRST NATIONAL BANK AND TRUST COMPANY OF TULSA

1895 *We Bank on OIL* 1938

Michigan Field Report

By
O. C. PRESSPRICH

Overisel Township Wildcat Gauges 400 Bbls., 6 Hours

SAGINAW, Mich., July 25.—Following on the heels of the oil strike in Freeman Township, Clare County, which opened a new Michigan territory for exploration, came another important wildcat oil strike the past week, shifting attention to southwestern Michigan—Overisel Township, Allegan County. A wildcat test by William J. Cline at his No. 1 Helmar, NE SW SE section 36-4n-10w, flowed oil and set the territory agog over possibilities of a new Allegan field, or at least an important extension of one of two existing fields. The discovery was considered most important because it was preceded by two dry tests in the same township.

The Overisel-Allegan wildcat was regarded by some operators as opening an entirely new pool, while others believed it to be a western extension of the productive Salem field, or a northwestern extension of the Monterey pool, both adjoining Overisel Township. While paramount interest was focused on the latest strike, where a gauge of 400 bbls. in six hours was taken after the wildcat began to flow, the Freeman-Clare area, "hot" spot discovery of two weeks ago, showed effects of its wildcat discovery by launching three tests. These two areas of Michigan promise extensive exploration for weeks to come. Both prospective fields are leased solid by active operators.

The Cline wildcat was regarded this week as one of the best wells in the Allegan district, and geologists were speculating on the significance of the test being brought in at 1,464 feet, in the Traverse sand formation, while other productive wells in nearby Salem and Monterey townships averaged about 1,575 feet. Reports late last week were that the well was shut down due to lack of storage.

Michigan Devonian Petroleum Co., of Saginaw, has several tracts in Salem and Monterey townships with exploration expected to be stimulated in outlying sections in the direction of the strike in Overisel. Heath Township, immediately south of Overisel, is now looked on as possible fertile territory, as well as western sections of the proved Salem area and northwestern Monterey. Allegan County fields, which more or less have consistently led Michigan in recent weeks in the number of new producers, are expected to hold the focal point of interest for some time—at least until fickle attention is drawn to some new discovery.

Meanwhile projected wildcat tests in Freeman-Clare, indicated a week ago as results of S. J. Higelmire Trust No. 1 Van Horn, NE SW NW section 3-18n-6w, which continued to flow at better than 250 bbls. daily, were resulting the past week in considerable activity in Redding Township—immediately north of Freeman—and proposed boundary tests north, south and west from the Higelmire wildcat.

Samples of oil taken from the Higelmire test indicate it to be high in specific gravity, higher than either Buckeye or Edenville. Tests show the oil to be 43 specific gravity, equivalent to or slightly better than Vernon-Isabella crude. The Clare oil is slightly under Saginaw crude, which showed from 44 to 47 gravity.

Daily Crude Oil Co. indicated another proposed tentative location in the Clare field with a projected test in section 34 of Redding Township to test possibilities of extension of a productive vein more than a mile north from the Higelmire wildcat. The three tests of the area for which state permits were taken last week are Pure Oil Co. No. 1 Switzer, C S half NW SW section 27, Redding Township; J. V. Wicklund Development Co. No. 3-M State, NE NW SE section 5, Freeman Township, and a projected No. 2 Van Horn to be drilled by S. J. Higelmire Trust as a south offset of the discovery well.

Besides claiming attention as the site of the newest prolific strike of importance, Allegan County fields recorded four new producers and one dry hole for the week, again heading Michigan field activities, although Buckeye advanced to the front with four completions exceeding in daily potential the new Allegan producers. Ten new producers added in all Michigan fields last week were shared by Allegan and Buckeye with four each, while Edenville's Midland field and Mills Township, Ogemaw County, added one each. Four tests were found dry and scheduled for abandonment.

Six Months Results

Following is a summary of completed work in Michigan in the first six months of 1938. A review of the half year's work in detail appears elsewhere in this edition.

Summary of Wells Completed First Half of 1938

County—	Comp.	Prod.	Dry	Gas
Adams	8	546	4	0
Bentley	21	1,609	3	0
North Buckeye	57	15,413	4	2
South Buckeye	41	11,120	4	0
Clayton	14	3,235	1	0
Crystal	1	50	0	0
Dorr	14	1,641	2	0
Edenville	30	11,890	5	0
Edmore	1	0	0	1
Monterey	21	6,060	6	0
New Haven	1	0	1	0
Porter	7	907	1	0
Salem	38	9,661	4	1
Secord	4	100	3	0
Sherman	13	4,309	1	0
Trowbridge	3	25	2	0
West Branch	25	1,836	5	0
Winfield	4	0	2	2
Wisener	1	70	0	0
Geneva	1	0	1	0
Wise	4	7	3	1
Broomfield	2	0	2	0
Deerfield	1	10	0	0
Wildcats	142	1,116	122	6
Total 1938	454	69,605	176	13

Completions by Months

	Comp.	Prod.	Dry	Gas
January	69	13,930	22	2
February	62	10,546	20	2
March	57	9,534	20	4
April	84	14,517	32	2
May	92	9,003	47	1
June	90	12,075	35	2
Total six months	454	69,605	176	13
Same period 1937	445	167,932	140	46
Difference	9	98,327	36	33

Midland County—Edenville Township

While drilling continued active in Edenville, where a few weeks ago a wildcat opened up another Michigan area for exploration, success evaded producers of the week in the sector, with one dry test and one disappointing acidized producer. McClanahan Oil Co. No. 1 Raymond, NW SE SE section 27-16n-1w, a natural producer of 100 bbls. daily a week ago, was acidized to 150 bbls. daily. While increased 50 per cent, results were not considered satisfactory. Sun Oil Co. No. 1-C State appeared slated for abandonment after failure to take acid. It is in the NW NW SW section 26-16n-1w, an edge test and a south offset to a producer in the eastern sector of the field. The well logged 150 feet of oil in the hole. Its failure under acid was regarded as indicating a boundary marker in that section. Sun No. 8-B State-Edenville, SW NE NE section 27, was setting casing in the Dundee at 3,741 feet, and was due to resume drilling over the week-end. Several other tests in Edenville were nearing the pay stratum.

Jerome Township

Sun Oil Co. logged another failure to extend the Edenville producing area when its No. 3-A State-Jerome, SW SW SW section 4-15n-1w, was found dry in the Dundee, and was listed for abandonment. Sun continued its deep test in Jerome at the No. 1-B State-Jerome, SW SW NE section 9. Plans are to deepen the test into the Sylvania formation after failure to take acid at 4,668 feet. About 1 bbl. of oil daily was logged naturally from the Detroit River series formation (Monroe). Testing for geological data will continue. The test is about 3 miles south and slightly west of the Edenville play.

Allegan County—Salem Township

Two producers and a dry test were marked as completions in Salem last week in territory adjoining on the east the sensational Overisel Township wildcat, but some 2 miles distant. Michigan Devonian Petroleum Co. No. 1 Smith, SE SW SW section 15-4n-13w, gauged an after-acid production of 300 bbls. daily to lead new Allegan field production of the week. Regal Dutch Petroleum Co. No. 7 Hardy, NE SE NW section 21, in the central part of the field, was acid treated to 200 bbls. daily. The dry hole in Salem was William Mesel No. 1 Mellish, NE NE SW section 25, which failed to log a commercial show.

Monterey Township

Sim B. Hood No. 2 Wright, SE SW SW section 9-3n-13w, was the lone new producer of the week in Monterey. It rated 200 bbls. daily after acid.

Gladwin County—Buckeye Township

Productive Buckeye maintained honors as a prolific field with three highly favorable producers in the south (Oard) pool, and one in the north (Wicklund) pool, which raised the daily potential of the field more than 1,000 bbls. daily. Two of the south pool tests were added in section 27, which is extending the western boundaries of the field steadily. No dry holes marred the record of the week. Bell & Marks added another good well on their Schember lease with No. 1, SW SW NW section 26-18n-1w, which topped the new producers of the field for the week with a gauge of 400 bbls. daily after acid. The previous week the same company brought in its No. 3 at 300 bbls. daily after acid on the same lease. Marshall H. Baumann added the two western area extensions, the No. 3-A Hostetler, NW NE NE section 27, rated at 250 bbls. daily after acid, and the No. 1-B Hostetler, NE SW NE section 27, a 200-bbl. well after treatment. The north field producer was H. H. Hart Oil Producing Co. No. 4 Soldan, NE NE SE section 12, an eastern area well in proved territory, which rated 200 bbls. daily acidized.

Dorr Township

One producer and a dry hole summarized the week in Dorr Township. Muskegon Oil Corp. No. 1 Winks, NE SW SW section 29-4n-12w, gauged 50 bbls. daily after acid, but Lentz & Miller No. 1 Jankowski, NE NE NW section 32, was dry and will be abandoned.

Ogemaw County—Mills Township

Michigan's most northerly oil field continues to tap favorable producers, the latest being Weber Oil Co. No. 2 Mills Estate, SW SE SE section 36-21n-3e, which flowed 150 bbls. naturally this week.

Isabella County—Vernon Township

The only active test in Vernon Township proved dry last week. It was Chartier Oil Co. No. 4 Currie, SE SE NW section 8-16n-4w.

Mecosta County—Millbrook Township

Mecosta County appeared ready to line up for a deep oil test this week after Jetter Drilling Co. No. 1 Deakens, SE NE NE section 28-13n-7w, failed to show

(Continued on Page 231)

Central West

By STAFF CORRESPONDENT

Kentucky and Illinois New Pools in Another Busy Week

ASHLAND, Ky., July 25.—Fair sized oil and gas wells were reported completed in the Eastern Kentucky fields in the past week.

Warfield Gas Co. completed No. 4772, Jeff Newberry land, on Backlog Creek in Martin County, at a total depth of 2,802 feet, in brown shale, with a daily production of 286,000 feet of gas. The same firm completed No. 4777, Clementine Goble land, on Spence Branch in Martin County, at 2,606 feet, in shale, with a flow of 116,000 feet of gas per day.

Inland Gas Co. has a 15-bbl. well in No. 200, Layne heirs land, on Toms Creek in Floyd County, at a total depth of 1,604 feet, in Big lime.

Hamilton Gas Co. reported the completion of a 630,000-foot gas well, No. 78-D, James Hatcher land, on Ivy Creek at a total depth of 2,536 feet, in Big lime.

Virginian Gas & Oil Co. No. 3 W. J. Park (Virginian Gas & Oil Co. V-1262), was completed at a total depth of 1,451 feet, in Maxon sand, with production of 20 bbls. daily. The same firm got 50 bbls. of oil and 309,000 feet of gas per day from No. 4 W. J. Park (Virginian Oil & Gas Co. V-1263) at a total depth of 1,612 feet, in Maxon sand.

Virginian Gas & Oil Co. No. 7, V-1266, Lida Ann Moore, in Lee County, on Sinking Creek, is a good gasser, and No. 3, Mancy Jane Cassady, V-1254, on Little Crooked Creek, in Martin County, at a total depth of 1,656 feet, in Maxon sand, started at 327,000 feet of gas daily.

Jenkins & Evans completed No. 4 Thealka Coal Co., on Road Fork, Johnson County, at a total depth of 1,811 feet, in shale. The production is 100,000 feet of gas daily.

Stephens and others completed No. 1 Awilda Darby (Dock Johnson), on Toms Creek, in Floyd County, at 1,574 feet, with daily production of 10 bbls. of oil.

Spradlin and others completed No. 1 (Hog Lot well) James Damron, on Toms Creek in Floyd County, at a total depth of 1,517 feet, in Big lime, with a 3-bbl. daily production.

Sturgill and others No. 1 Layne & Damron, on Toms Creek, in Floyd County, started with a daily output of 10 bbls. of oil and 500,000 feet of gas, total depth 1,511 feet, in Big lime.

Meade & Stevens completed No. 1 Sam Webb in Maxon sand, total depth 3,241 feet, and have a 700,000-foot gas well.

Inland Gas Corp. No. 199, on the Helen Leslie land, on Harmond Branch, Pike County, was completed at 3,455 feet. It was good for 250,000 feet of gas the first 24 hours.

Kentucky-West Virginia Gas Co. No. 5242 on the C. W. Preece land, on Coldwater Fork, Martin County, is a 30-bbl. Maxon sand producer at a total depth of 1,480 feet.

Diederich No. 6 Amy Pauley, on Big Crooked Creek in Martin County, started at 10 bbls. a day from the Maxon pay, total depth of the hole 1,480 feet.

OHIO

LIMA, O., July 25.—Ohio operators completed six oil wells, four gas wells and nine dry holes during the week. In Ashland County, Montgomery Township, J. L. Stover Co. No. 1 Vere Boffenmyer, section 25, found the Berea dry at 482-511 feet.

In Athens County, Rome Township, Milhoon No. 4 J. H. Cunningham, section 29, made 150,000 feet of gas from the Salt sand at 908-11 feet. In Lodi Township, C. J. Ross No. 2 G. P. Ackley, section 19, produced 16 bbls. of oil the first 24 hours after shot from the First Cow Run at 355-68 feet.

In Belmont County, Somerset Township, Barnesville Development Co. No. 1 Samuel Carpenter, section 2, made 500,000 feet of gas from the Keener sand at 1,375 feet.

In Gallia County, Cheshire Township, Brannan & Bartlett No. 1 R. M. Sigmen, section 14, was dry in the Second Berea at 1,689 feet.

In Guernsey County, Cambridge Township, Cambridge Glass Co. No. 1 Uriah Bichard, Town Lot 3, village of Cambridge, was a gas well good for 100,000 feet of gas in the Berea at 1,095 feet.

In Knox County, Clay Township, Sterl Brown No. 1 William Bowman, section 25, started at 5 bbls. of oil the first day after a shot in lime at 1,728 feet. In Union Township, H. E. Perkins No. 1 H. E. Perkins, in the village of Danville, is a combination well making 400,000 feet of gas and 25 bbls. of oil the first 24 hours after shot, from Clinton sand at 2,727-78 feet.

In Harrison County, Freeport Township, George Jewell No. 1 Arthur Miller, section 19, had a small showing of gas in the Berea at 1218 feet, but was later abandoned at a depth of 1,297 feet.

In Lawrence County, Washington Township, Wiser Oil Co. No. 1 W. N. Howell, section 12, is a gas well gauging 320,000 feet from the Clinton sand at 2,853 feet.

In Lorain County, Penfield Township, William Dempsey No. 1 E. S. Jones, section 4, was drilled to 2,700 feet and aabndoned.

In Licking County, Fallsbury Township, Hulse-Kuntz Inc. No. 2 Madison Billman heirs, section 12, made 30 bbls. of oil the first day after shot and 100,000 feet of gas from the Clinton sand at 3,052-3,113 feet. In Franklin Township, Wehrle Gas Co. No. 1 A. E. Osborn, section 19, found the Berea sand dry at 816-29 feet.

In Meigs County, Letart Township, Powell No. 1 Michael Powell, section 7, was dry at a depth of 606 feet.

In Monroe County, Benton Township, Hanlon & Scohy No. 2 Jane R. Amos, section 23, is a 3-bbl. pumper in the First Cow Run sand at 813 feet. In Center Township, Hogue & Decker No. 1 A. L. Hines, section 35, was dry in the Berea sand at 2,105 feet.

In Washington County, Barlow Township, Allison No. 1 C. C. Hayes, section 10, found the Maxburg 500-foot sand dry at 922-29 feet. In Salem Township, Earl Montgomery No. 6 William Gross heirs, Lot 37, good for 4 bbls. of oil from the Maxburg 700-foot sand at 885-98 feet. In Salem Township, Dave Ripley and others No. 46 Lily Ripley, Lot 41, found the Buell sand dry at 240-67 feet.

Lima Field

A number of wells have been started in the area north of Tiffin, in Seneca County. In Liberty Township,

(Continued on Page 243)

Birk City Extended Three-quarters of a Mile on the Daviess County Side

OWENSBORO, Ky., July 25.—Western Kentucky's new oil field, Birk City, in Henderson and Daviess counties, is under proration because of inadequate shipping facilities. It is necessary in some cases, when lease storage is filled, to shut in wells until sufficient oil is taken from storage to permit of a resumption of producing operations. It is estimated that only about 2,500 bbls. of oil per day is being shipped out of the field from the score of completed wells, capable of producing a far greater quantity of crude. The field was extended about three-quarters of a mile on the Daviess County side in the past week.

In the Birk City pool, five actual and prospective oil wells were reported from the field in the past week. On the Daviess County side, Major Oil Co. and others No. 1 Mrs. H. Harrington cored McClosky lime, finding good saturation, and W. E. Hupp and Snowden & McSweeney No. 1 Mrs. L. Taylor also found a good showing of oil in McClosky. Both wells were about to be drilled in when this was written. Globe Oil Co. and others No. 1 A. R. James estate was swabbing 15 bbls. per hour from McClosky lime at 1,864-74 feet, total depth. It had not been acidized. Major Oil Co. was building derrick for No. 1 Horace Nelson, 2 acres, and Hupp and Snowden & McSweeney were moving in to start No. 2 Mrs. L. Taylor. On the Henderson County side of the field, Hoosier Drilling Co. No. 6 C. T. Blackwell estate is a 400-bbl. well from pay at 1,865-75 feet, and location has been made for No. 7 Blackwell. Aetna Oil Service Corp. No. 1 C. A. Dempewolf, 43 acres, cemented pipe on top of the McClosky lime and the crew was waiting for cement to set. W. E. Hupp and others No. 3 Mrs. J. Gatewood cored the McClosky formation and found a good oil showing.

The James lease in Daviess County, above referred to, is owned by Globe Oil & Gas Co. of Lima, Ohio, Frank Zogg, W. K. Snyder, A. J. Stewart, and Joe Lang of Owensboro. The first oil well on the lease is about three-quarters of a mile northeast of the first oil well on the Daviess County side of the field, reported last week.

Reports from other fields in Western Kentucky show the following results in completions and new operations:

In Butler County, Silver City district: Porter Evans and others No. 1 A. R. Brown is a 10-bbl. well in Jackson sand at 500-09 feet, total depth, shot with 20 quarts. Rochester district: H. C. Darby and others No. 1 F. A. Ward heirs, dry hole at 900 feet.

Daviess County, Berry School district: McDonough & Co. No. 1 I. Coomes, dry hole at 888 feet.

Hancock County, Easton district: Joseph B. Mayers and others No. 13 Jesse Stewart, 5 bbls. a day from Jett sand.

Henderson County, 1 mile southwest of Hebbardsville: J. A. Shoemake and others No. 1 Otto Busby, location. Niagara district: Mecca Oil Co. No. 6 J. W. Wilson, 10-bbl. well in Niagara sand.

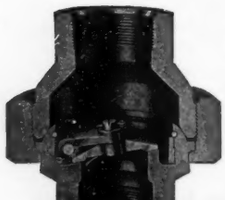
Ohio County, Sunnydale district: Lewis & Lang No. 7 J. B. Cambron, 15 bbls. a day from Barlow sand at 926-43 feet. Taffy district: Nollem Oil & Gas Co. No. 1 Mary Cundiff, dry hole through Jett sand. Deanfield district: Black Jack Oil Co. No. 9 E. D. Fuqua, 5 bbls. a day from Jett sand. Friendship Church district: Charles Marsh and others No. 1 J. H. Lloyd, drilling at 100 feet; A. Teller and others No. 17 A. A. Whitehouse, 10 bbls. a day from Barlow sand. Adaburg district: Hardie and others No. 1 Charles Roach, 10 bbls. a day from Jett sand at 580-92 feet.

Webster County, Sebree district: I. B. Browning and others No. 6 J. R. Ramsey, deep test, drilling at 2,835 feet; good show of gas at 50 feet in the Black shale.

"Tell Jones to put forged steel check valves on that line"

"WE'RE playing safe with Catawissa Union Swing Check Valves on all our high pressure lines. Once installed we can forget them, and they sure do their job efficiently. Line trouble eliminated is money saved for us."

Many top men in the oil industry already appreciate the efficient job done by Catawissa Forged Steel Unions and Check Valves. We'll furnish complete information on how they can do the same for you—or ask your supply jobber.



NO. 600 UNION TYPE SWING CHECK VALVE

For 600 lbs. Working Steam Pressure, 1500 lbs. Oil, Water, Gas Pressure. All inside working parts are forged stainless steel.

CATAWISSA

Forged Steel UNIONS and CHECK VALVES

THE CENTRAL FORGING CO.

CATAWISSA, PA.

Western Div.: 3415 E. Admiral Court, Tulsa, Okla.

ILLINOIS MAP

Official Nomenclature Map of State of Illinois, Southwest Indiana, and Northwest Kentucky, showing oil fields in green, gas fields in red with index giving official name of each field and location on map.

The map shows counties, county seats, townships and sections, also wildcat wells drilling, dry holes with elevations and total depths.

Size: 51" x 51"; scale: 1" = 5½ miles. Price: Paper, $17.50; Linen, $20.00, F.O.B. Tulsa.

PHONE 2-1952

E. C. JACOBSON

801 McBirney Bldg.

TULSA, OKLA.

Other Official Nomenclature Maps

Kansas — Oklahoma — Texas — Arkansas — Louisiana — Wyoming — Colorado — New Mexico — Mid-Continent Area — The United States — *Folder sent on request.*

Gulf Coast Fields

(Continued from Page 213)

Louisiana Coast

Prospects of a second well for the new Creole field, over a mile off the Cameron Parish coast in the Gulf of Mexico, were seen over the week-end. Superior Oil Co. No. 2-A State topped oil sand at 5,142 feet (drillers' depth) and cored to 5,159 feet. The hole was drilled directionally and vertical depth of the sand top is only 5,116 feet. The hole has been reamed to 5,125 feet and casing will be run. The original hole, No. 2 State, was drilled to a location 1,320 feet northwest of the discovery well, where it missed the pay sand. After drilling to 6,813 feet, it was plugged back to 1,200 feet at the bottom of the surface casing and drilled to a location east of the discovery well.

Magnolia Petroleum Co. has made location for its second test in the recently opened West Gueydan field, Vermilion Parish. This test, No. 1 Reece, is a half mile southeast of the discovery well, No. 1 Ferguson, completed by Magnolia Petroleum Co. about four weeks ago. The latter was brought in as a distillate well from perforations in the casing at 7,140-50 feet. Since completion the discovery well has been increasing steadily in volume, and now is making around 200 bbls. daily. Gravity of the oil also has become lower, and the fluid is showing more discoloration. A roadway now is being laid to the new location preparatory to moving in rig.

Drilling development continued active at Jennings, where flank production is spreading rapidly around the west and north side of the old dome. Operations the past week, however, were largely routine. At Hackberry an increasing amount of new work is getting under way.

At South Roanoke, Jefferson Davis Parish, Continental Oil Co. has been fighting high gas pressure encountered in its No. 1 Sturdivant at 10,330 feet. The well tried to blow out. Union Sulphur Co. No. 2 T. R. S. Farms, same field, is drilling around 9,750 feet.

COMPLETIONS ON TEXAS COAST

Brazoria County

West Columbia field: Frost-Dunman No. 1 Mary C. Masterson, total depth 5,324 feet, 590 bbls., ¼-inch choke, tubing pressure 650 pounds, casing pressure 600 pounds. Adrian Moore No. 4 Gulf fee, total depth 5,397 feet, 460 bbls., ¼-inch choke, tubing pressure 475 pounds, casing pressure 650 pounds. The Texas Co. No. 24 Abrams, total depth 5,622 feet, plug back depth 5,596 feet, perforated casing 5,554-95 feet, 465.30 bbls., ¼-inch choke, tubing pressure 600 pounds, casing pressure 160 pounds. Hastings field: Humble Oil & Refining Co. No. 11 McDeed, total depth 6,060 feet, 584 bbls., ¼-inch choke, tubing presure 800 pounds, casing pressure 925 pounds. Humble Oil & Refining Co. No. 9 Schindler, total depth 6,050 feet, 651 bbls., ¼-inch choke, tubing pressure 850 pounds, casing pressure 950 pounds. Stanolind Oil & Gas Co. No. 29-A W. R. Curkeet, total depth 6,080 feet, 590.84 bbls., ¼-inch choke, tubing pressure 825 pounds, casing pressure 850 pounds.

Chambers County

Anahuac field: Humble Oil & Refining Co. No. 9 J. E. Broussard, dry and abandoned. Humble Oil & Refining Co. No. 6 G. C. Wilson, total depth 7,205 feet, plug back depth 7,060 feet, 624 bbls., ¼-inch choke, tubing pressure 1,100 pounds, casing pressure 1,725 pounds. Humble Oil & Refining Co. No. 6 Wilcox, total depth 7,060 feet, 28 bbls. per hour, ¼-inch choke. Seabreeze field: Sun Oil Co. No. 2 Seabreeze (W.O.), old total depth 8,854 feet, plug back depth 8,706 feet, perforated casing 8,690-8,705 feet, 72 bbls. distillate, 17 hours, ¼-inch choke, tubing pressure 2,900 pounds, casing pressure 3,250 pounds. Turtle Bay field: Stanolind Oil & Gas Co. No. 8-B Silva, total depth 6,683 feet, plug back depth 6,647 feet, 132 bbls., ⅛-inch choke, tubing pressure 775 pounds, casing pressure 1,000 pounds.

Fort Bend County

Sugarland field: Strake Petroleum Inc. No. 1 Dew total depth 7,511 feet, dry and abandoned. Boling field: Mackhank Oil Co. No. 4-A J. R. Farmer, total depth 4,622 feet, dry and abandoned. Mackhank Oil Co. No. 3-B Farmer, old total depth 5,035 feet, sidetracked total depth 4,625 feet, 395 bbls., ¼-inch choke, tubing pressure 280 pounds, casing pressure 590 pounds. Thompson field: Humble Oil & Refining Co.-Gulf Oil Corp. No. 18-X H. P. Lockwood, total depth 3,683 feet, plug back depth 3,681 feet, perforated casing 3,675-81 feet, 88 bbls., ¼-inch choke, tubing pressure 1,050 pounds, casing pressure 1,300 pounds.

Galveston County

Dickinson field: Bennett Producing Co. No. 3 Levine, perforated casing 8,064-88 feet, 412 bbls., 3/16-inch choke, tubing pressure 1,850 pounds, casing pressure 2,050 pounds. Hitchcock field: N. W. Hunter No. 16 Aarco, total depth 5,176 feet, perforated casing 5,152-56 feet, 483 bbls., ½-inch choke, tubing pressure 400 pounds. Maco Stewart No. 3 fee, total depth 5,148 feet, 557 bbls., ¼-inch choke, tubing pressure 625 pounds, casing pressure 700 pounds.

Hardin County

Batson field: Atlantic Refining Co. No. 1 Cruse, total depth 5,483 feet, 362 bbls., ¼-inch choke, tubing pressure 450 pounds casing pressure 1,000 pounds. Silsbee field: Republic Production Co.-Houston Oil Co. No. 1 Winters, total depth 6,918 feet, 270 bbls., ½-inch choke, tubing pressure 575 pounds, casing pressure 850 pounds.

Harris County

Eureka field: Tide Water Associated Oil Co. No. 1 Laura Lackner, total depth 7,800 feet, perforated casing 7,755-67 feet, 556 bbls., ¼-inch choke, tubing pressure 800 pounds, casing pressure 950 pounds. Fairbanks field: Amerada-Stanolind Oil & Gas Co. No. 1 P. Korasz, total depth 6,845 feet, perforated casing 6,833-40 feet, 257 bbls. 12 hours, ¼-inch choke, tubing pressure 1,700 pounds, casing pressure 2,450 pounds. Windsor Oil Co. No. 3 Ley, total depth 6,844 feet, perforated casing 6,839-43 feet, 649 bbls., ¼-inch choke, tubing pressure 1,650 pounds, casing pressure 2,550 pounds. Gem Oil Co. No. 2 Reid, total depth 6,857 feet, perforated casing 6,851½-6,855 feet, 171 bbls. 6 hours, ¼-inch choke, tubing pressure, 1,000 pounds, casing pressure, 1,000 pounds. Friendswood field: Humble Oil & Refining Co. No. 1-B Port City, total depth 6,045 feet, 614 bbls., ¼-inch choke, tubing pressure 875 pounds, casing pressure 875 pounds. Humble Oil & Refining Co. No. 2 West, perforated casing 5,830-6,010 feet and 5,734-5,830 feet, 589 bbls., ¼-inch choke, tubing and casing pressure 850 pounds. Humble Oil & Refining Co. No. 6-B Godwin, total depth 6,042 feet, 25 bbls. per hour, ¼-inch choke. Humble field: Wilson Oil Co. No. 1 Wilson, total depth 3,227 feet, salt, dry and abandoned.

Wildcats: O. W. Killam No. 1 Dodd (Ogburn Prospect), total depth 7,015 feet, dry and abandoned.

Orange County

Orange field: General Crude Oil Corp. No. 1 State-Cow Bayou, total depth 6,035 feet, plug-back depth 6,018 feet, perforated casing 5,990-6,018 feet, 10 bbls. per hour, quarter-inch choke, tubing pressure 1,810 pounds, casing pressure 1,900 pounds.

LOUISIANA GULF COAST

Ascension Parish

Darrow field: Humble Oil & Refining Co. No. 3 Landry, total depth 6,969 feet, 500,000 feet of gas, 68 bbls. of oil, quarter-inch choke, tubing pressure 1,330 pounds, casing pressure 1,400 pounds.

Cameron Parish

East Hackberry field.: Union Sulphur Co. No. 44 Watkins, sand 2,802-28 feet, 400 bbls., quarter-inch choke, tubing pressure 250 pounds.

Rocky Mountain Area

(Continued from Page 227)

Pondera County

Jones-Chambers No. 1 Erickson, SW SE SW sec. 3-27n-4w. Cmtg. csg. above contact at 1,500 ft.

Stillwater County

Indian Terr. Ill. Oil Co. No. 2 Hepp, NW NW NW sec. 25-1n-21e. Drlg. 5,156 ft.

Teton County

The California Co. released the location for its test on the Dupuyer structure in its No. 1 Unit, NE SE SW section 26-27n-9w. Manning & Martin, Inc., have the contract which calls for a 2,500-foot hole to the Paleozoic section.

California Co. No. 1 Unit, NE SE SW sec. 26-27n-9w. Bldg. rd. and M.I.M.

Gulf State Oil-Zodiac Oil Co. No. 1 Coffee-Wallenstein, SW SW SW sec. 5-27n-5w. Drlg. 1,350 ft.

Toole County

The best bid offered for leases in the Kevin-Sun-

burst field at the government's auction sale was $50.50 an acre for a 120-acre tract in SW SE section 11 and W half NE section 14-35n-2w, Unit No. 5, which went to Casper T. Olen. Thirteen units were offered.

Yellowstone County

Broadview Dome Oil Co. No. 1 Stallinberger, NE NE SW sec. 18-3n-23e. S.D. 4,565 ft.; to resume.
Riverton Oil Co. No. 1 Fox, CEL NW NE sec. 14-2n-23e. T.D. 1,795 ft. (C.D.); fsg.

UTAH

Grand County

Cane Creek Oil Co. No. 1 Govt., NW SW sec. 31-26n-21e. T.D. 1,600 ft.; rng. 10-in. to 1,397 ft.
Crescent Eagle Oil Co. No. 1 Brendel, SW SE sec. 4-22s-19e. Drlg. 3,948 ft.

Summit County

Mountain Fuel Supply Co. No. 1 Wilde, NE SE SE sec. 9-2n-5e. Drlg. 2,934 ft.
Longwell Pet. Co. No. 1, SE SW SE sec. 35-3n-5e. T.D. 2,876 ft.; fsg.; H.F.W.

NEBRASKA

Keith County

Twentieth Century Oil Co. No. 1 Stuken, C NW NW sec. 21-14n-37w. Drlg. sh. 1,200 ft.

Scotts Bluff County

Houston Pet. Co. No. 1 Judd, NE NE NE sec. 15-22n-57w. Spdg. C.T. to 2,200 ft.; will then convert to rot.

Sioux County

Felmont Oil Corp. No. 1, C SW NE sec. 21-27n-55w. Cmtd. 15½-in. at 500 ft.
Union Oil Co. of Calif. No. 1 Agate-15, NW SE SE sec. 15-28-55w. T.D. 6,890 ft.; fsg. parted 10-in.; dropped 2,400 ft.

NORTH DAKOTA

Williams County

California Co. No. 1 Kamp, C NW NE sec. 3-154n-96w. Drlg. below 9,321 ft.

Michigan Fields

(Continued from Page 228)

commercial production in the Dundee limestone. Operators were reported to favor a Sylvania formation test, to probe deeper strata. The test is on the northern edge of the Six Lakes gas field.

Gratiot County—Sumner Township

Larson & Baker No. 1 Johnson & Stoughton, C W half section 33-11n-4w, tapped a small gasser in the Michigan "stray" sand, rated at 1,100,000 feet. Two other Gratiot County oil tests pointed toward the Dundee this week. Michigan Chemical Corp. No. 9 fee, SE SW NW section 24-12n-3w, Pine River Township, on the outskirts of St. Louis, was reported below 3,150 feet, with the Dundee due to be tapped soon. Regardless of failure in the Dundee as a commercial producer, the test is scheduled to go deeper as a brine test. Victory Petroleum and Rex Oil & Gas Co. No. 1 Thum, SE SW NW section 13-10n-4w, New Haven Township, is approaching the 3,000-foot level for another test of the Dundee limestone.

Kalamazoo County—Oshtemo Township

Progress on J. C. Arthur No. 1 Glidden, NW NE NW section 26-2s-12w, an attempt to bring commercial oil production to Kalamazoo County, is being closely watched. The test is below 1,550 feet, and while Traverse production is being sought, the test may be deepened to the Dundee limestone should the Traverse prove dry.

Oklahoma Fields

(Continued from Page 219)

section 8-15-14, location; Dodge Brothers No. 12 Payne, SE NE SE section 17-15-14, rig.

New Work Elsewhere

In Tussy pool, Garvin County, Cox & Hamon No. 3 Pate, SE SW SW section 29-1n-3w, had dug pits.

In Knox pool, Grady County, T. H. McCasland No. 1-A Finch, SE NW NE section 21-3n-5w, was a derrick; same operator's No. 2 Mecklenburg, SE cor. section 6-3n-5w, set surface casing at 20 feet.

In Loco pool, Stephens County, Glenn Johnson and others No. 1-A Massey, SW cor. section 11-3s-5w, was a machine.

In Lawton pool, Comanche County, W. T. Best No. 10 Curtis, SE SW NE SE section 25-2n-11w, was drilling below 100 feet.

EASY TO HANDLE!

"The Entirely Different Boiler and Engine Treatment"

This pure colloidal concentrate *comes ready for use* in 16 oz. cans—one can will eliminate all scale and corrosion from a 250 Hp. boiler for one month! Regardless of the operating conditions or the nature of the water used, ounces of Sand-Banum will do a better job than hundreds of pounds of "boiler chemicals"!

Not only is it SAFE..SURE..and SIMPLE but it also costs less to use. Send for booklet "HOW and WHY" then try it on our "Satisfaction or No Money" guarantee!

AMERICAN SAND-BANUM COMPANY, Inc.
9 ROCKEFELLER PLAZA NEW YORK CITY

Renew Your Subscription Promptly

William M. Barret, Inc.
Consulting Geophysicists
Specializing in Magnetic Surveys
Contracts accepted for domestic and foreign projects, using the most improved instrumental and interpretative technique.
GIDDENS-LANE BUILDING -:- SHREVEPORT, LA.

NOTHING TAKES THE PLACE OF *FORGINGS!*

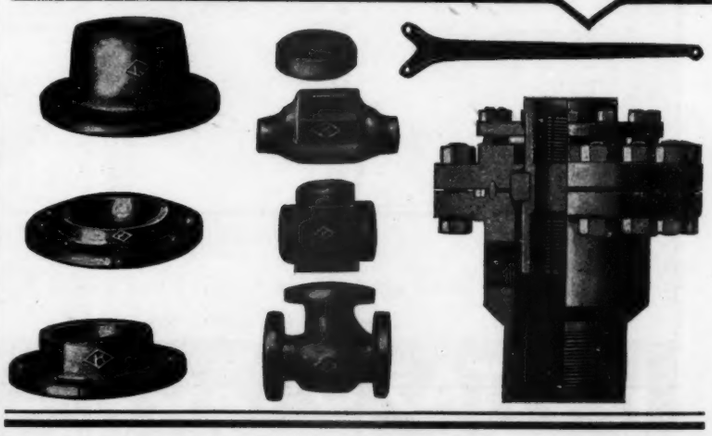
And no forgings take the place of Kropp Forgings because they are made to your exact specifications by skilled craftsmen; heat-treated, rough finished or machined all in one plant.

For many years Kropp has furnished die and hammer forgings of all sizes for all uses to the oil industry. It is but natural that these years of contact with the industry enable us to better interpret the needs of our customers and make us the logical source of supply for you when you need forgings.

Besides making "forgings to your specifications," Kropp makes a complete line of forged steel flanges; companion flanges, welding necks and casing heads. 500,000 flanges are carried in stock at all times for immediate shipment to oil fields, refineries or booster stations.

Let us send you a copy of Stock Flange List No. 125A listing all types and sizes.

KROPP FORGE COMPANY
5309 W. Roosevelt Road, Chicago, Ill.
Sales offices in Tulsa, Dallas, Houston, Pittsburgh, Los Angeles and New York.
Representatives at Birmingham, Cincinnati, Cleveland, Denver, Detroit, Indianapolis, Milwaukee, St. Louis, St. Paul, Buffalo and Seattle.



Southwest Texas District

By
F. L. SINGLETON

Two Important Extensions to Production in the Alice Field

CORPUS CHRISTI, Tex., July 25.—Principal interest of Southwest Texas operators the past week was directed to the Alice field, Jim Wells County, where two important extensions to production were made, and where a widespread drilling play is under way. Extensions of production also were made in other areas, and several wildcats were showing for opening of new fields.

Production at Alice was extended both southwestward and eastward. Most important was W. G. Coates No. 1 Stillwell, three-quarters of a mile southwest of the field. It was completed flowing 240 bbls. of pipe line oil in 20 hours through a three-sixteenths inch choke with 890 pounds working pressure on tubing and 1,150 pounds on casing. The test casing was perforated at 5,238-48 feet in the Vicksburg pay from which the remainder of the field is producing. Previously the well cored sand at 5,236-60 feet, and drilled to 5,303 feet where the casing was cemented.

A 4,500-foot extension east of the field was made by Pan American Production Corp. and Earl Callaway in No. 1 Cook, which with casing perforated at 5,176-83 feet, flowed on completion 20 bbls. of distillate with 2,500,000 feet of gas daily through 12/64-inch and three-sixteenths inch bottom and top chokes. The well showed a pressure of 2,200 pounds on tubing and 2,300 pounds on casing.

With the extension by the Coates well, interest in the field is being directed to another extension test being started by H. H. Howell, 11,000 feet southwest of the main field. This test is on the H. J. Moser tract in Lot 97, Collins Farm Lots Subdivision. Two miles north of the field, Mills Bennett Production Co. No. 1 Perkins is drilling below 3,500 feet in sidetracked hole after plugging back from a total depth of 5,658 feet. Around the Coates extension well, three other tests have been started and locations have been made for two others.

On the Woodsboro prospect, Refugio County, I. J. Allen is attempting to make a producer in his No. 2 Rooke, a wildcat. The test, drilled to a total depth of 6,875 feet, was plugged back to around 5,440 feet, where a sand showing oil was passed up. Casing was perforated at 5,428-32 feet, and a drill stem test showed oil and water. A squeeze job has been completed and the casing is to be reperforated slightly higher.

Indications of a new gas field for Goliad County were given when a wildcat being drilled by George Echols and Continental Oil Co. tried to blow out while coring in sand at 4,665 feet. The well, No. 1 Power, is in the William Lavery League, on a 5,500-acre block held jointly by the above operators. The hole was only 18 inches in the sand when the gas was encountered. The hole will be carried to its projected depth of 6,500 feet.

Stanolind Oil & Gas Co. No. 2 Vandenberge & Hill, northeast Placedo field, Victoria County, tested gas, distillate and water with casing perforated at 5,330-32 feet. These perforations have been cemented and the casing will be perforated. The sand is a new horizon for the field. Stanolind No. 1 E. Williams, same area, is in process of completion in the present producing horizon with casing perforated at 6,378-81 feet.

Duval County

Arkansas Fuel Oil Co. No. 2 Cuellar, 4,000 feet southwest of the Tesoro (De Soto) field, Duval County, is attempting to test a sand at 2,780-85 feet.

In the Charamousca field, Duval County, N. V. Hunter No. 21 Worden-Drought is testing sand at 1,064-78 feet. This will be the second well in this sand, recently opened. The well is a west offset to the discovery well of this sand.

Hiawatha Oil & Gas Co. No. 5 M. M. Miller, three-quarters of a mile west of production of the South Sweden field, Duval County, recovered 390 feet of oil in a 20-minute drill stem test at 4,898-4,917 feet, promising an important extension to that field. The sand, however, has been passed up and the hole will be drilled to the 5,800-foot producing horizon.

Humble Oil & Refining Co. No. 1 Adams, 5½ miles northeast of Ben Bolt, Jim Wells County, had sand showing oil at 3,458-81 feet. In a 20-minute drill stem test, 90 feet of mud showing oil and gas was recovered. Hole is being drilled deeper below 3,700 feet. Magnolia Petroleum Co. No. 1 Valades, 11 miles southwest of Ben Bolt, is reported to be running casing after trying to blow out at 6,390 feet. The casing is for protection of hole, it is claimed. George Echols No. 1 Balzen, 2 miles west of Orange Grove, also Jim Wells County, has been abandoned as dry at 5,259 feet. It is reported to have had a slight show of oil at 4,716-23 feet. Its location is about a mile northwest of a test drilled by Arkansas Fuel Oil Co. which had considerable oil at 4,798 feet. Another interesting wildcat for Jim Wells County will be one to be drilled by Smith & McDannald 5 miles east of the Sandia field, in the extreme northeast corner of the county. The test, No. 1 Rooney, is in Block 11, J. H. Gallagher Subdivision of the Casa Blanca grant, on a block formerly held by the Conservative Oil Co. and farmed out to the Pure Oil Co. The test is scheduled to go to 6,000 feet.

Another blowout was added to the list in Southwest Texas the past week when gas, supposed to be coming through a shallow sand from a leak in the casing of Harlan Grimes No. 2 Coggin, Midway field, San Patricio County, broke through the surface at a point about 300 feet southwest of the well, resulting in formation of a crater, which now is burning.

Aransas County

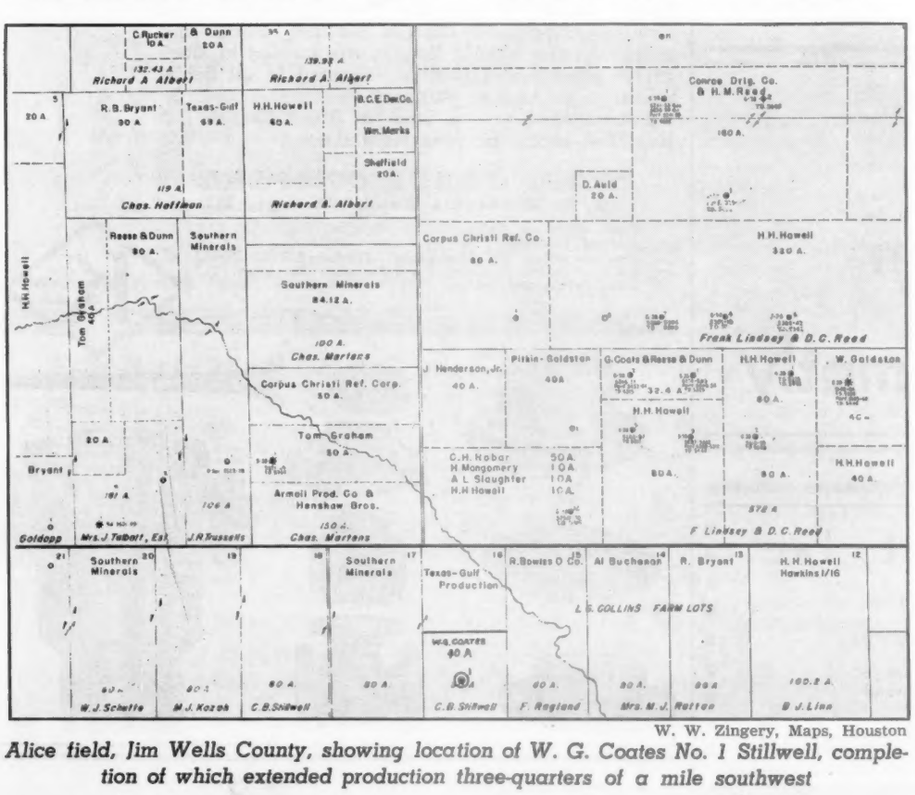
Coastline Oil Co. No. 1 State, in Red Fish Bay, 2½ miles southeast of Aransas Pass, Aransas County, made another unsuccessful attempt to complete as a producer, to open a new field. It tested salt water with casing perforated at 8,245-66 feet. The perforations have been squeezed, and the casing will be perforated again at a higher level. The hole originally was drilled to a total depth of 8,660 feet.

Outcome of Wheelock & Collins No. 1-A Guerra, Santa Cruz Grant, northeastern Starr County, is being watched as a possible new pool opener. It was being tested over the week-end and was reported making some distillate while flowing through a three-sixteenths inch choke from a sand in which casing was perforated at 5,927-29 feet. Pressure of 2,250 pounds on tubing and 2,350 pounds on casing is reported.

Another new shallow pool was opened in Bexar County the past week when Ball & DuBose No. 1 Miller, John Christopher Survey No. 55, was completed pumping 5 bbls. daily at 1,357-72 feet, where 5½-inch casing was perforated. Location is in the south part of the county with the well 1½ miles northeast of the Somerset road out of San Antonio. Fain, Harrison & Jenkins No. 1 Caroline Hansen, 250 feet northwest of the discovery well, also is on the sand at a total depth of 1,340 feet, and has run 6⅝-inch casing.

R. E. Harding No. 1 J. J. Lynn, a mile southeast of Pharr, southern Hidalgo County, also is reported to have a sand showing oil around 7,212 feet, where 5½-inch casing was cemented.

In the Laredo district along the shallow Mirando trend, W. F. Houser has completed No. 1 F. G. Garcia and C. G. Villareal, section 720, 3 miles north of Olton, Webb County, where an effort is being made to link the Olton and Killam pools. The well is producing from the Rosenberg sand at 2,492-96½ feet, where the 5-inch casing was perforated with 12 shots.



W. W. Zingery, Maps, Houston

Alice field, Jim Wells County, showing location of W. G. Coates No. 1 Stillwell, completion of which extended production three-quarters of a mile southwest

SOUTHWEST TEXAS COMPLETIONS

Bexar County

Wildcat: Ball & DuBose No. 1 Miller, John Christopher Survey, perforated casing 1,357-72 feet, pumped 5 bbls. daily.

Aransas County

McCampbell field: Baltic Drilling Co. No. 2 McNulty, perforated casing 7,111-20 feet, 459 bbls., three-sixteenths inch choke, tubing pressure 1,250 pounds, casing pressure 1,650 pounds.

Duval County

Sweden field: Hiawatha Oil & Gas Co. No. 9 Southland, perforated casing 4,525-30 feet, 10 bbls. distillate, quarter-inch choke, tubing pressure 1,500 pounds, casing pressure 1,650 pounds. Casa Blanca field: Magnolia Petroleum Co. No. 4 Duval County Ranch Co., total depth 1,214 feet, jetted 79 bbls. in 20 hours, one-eighth inch choke. Charamousca field: Magnolia Petroleum Co. No. 1 Duval Ranch Co., total depth 3,080 feet, dry and abandoned; No. 2, total depth 1,528 feet, 28 bbls. 17 hours, half-inch choke, pressure 250 pounds.

Hoffman field: Cox & Hamon No. 7 Cuellar-Points, sand 2,813-29 feet, 140 bbls., three-eighths inch choke. Fitzsimmons area: W. A. Richardson No. 1 Mew sand 4,298-4,303 feet, tested salt water, abandoned. H. J. Porter No. 2-A Fitzsimmons, total depth 3,610 feet, perforated casing 3,604-08 feet, 135 bbls., quarter-inch choke.

Bee County

Plummer field: W. G. Turbeville No. 1-A Smith, total depth 3,092 feet, dry and abandoned.

Wildcat: Dirk Brothers No. 1 T. W. Robertson, 4 miles southwest of Mineral field, total depth 4,310 feet, dry and abandoned.

Calhoun County

Heyser field: Humble Oil & Refining Co.-Plymouth Oil Co. No. 18 Welder, total depth 5,454 feet, 10.49 bbls. per hour, three-sixteenths inch choke, tubing pressure 450 pounds, casing pressure 1,100 pounds.

Frio County

Wildcat: F. L. Thompson No. 1 S. A. Joint Stock Land Bank, total depth 5,687 feet, abandoned.

Goliad County

Wildcat: Jack Frazier and Bunte Production Co. No. 1 Crews, total depth 5,710 feet, abandoned.

Guadalupe County

Wildcat: J. S. Suttle No. 1 Manford, total depth 2,776 feet, abandoned.

Jim Wells County

Alice field: W. G. Coates No. 1 Stillwell, total depth 5,303 feet, perforated casing 5,238-48 feet, 240 bbls., 20 hours, three-sixteenths inch choke, tubing pressure 890 pounds, casing pressure 1,150 pounds. Pan American Production Co. and Earl Callaway No. 1 Cook, total depth 5,500 feet, plugged back depth 5,132 feet, perforated casing 5,171-80 feet, 18 bbls. distillate, tubing and casing pressure 2,000 pounds. Wildcat: George Echols No. 1 Balzen, west of Orange Grove, total depth 5,259 feet, abandoned.

Live Oak County

Wildcat: Lomak Oil Co. No. 1 D. C. Reed, I.&G.N. Survey 15, total depth 4,500 feet, abandoned.

McMullen County

Wildcats: Harold Boyson and Byron Jones No. 3 Nueces, total depth 1,000 feet, abandoned. Bridwell Oil Co. No. 1 Nueces, total depth 1,711 feet, abandoned. W. A. Wagner No. 1 Hagist, total depth 3,000 feet, abandoned.

Milam County

Wildcat: Western Gulf Petroleum Co. No. 1 R. L. Batte, total depth 3,350 feet, abandoned.

Nueces County

Saxet field: Sultex Oil Co. No. 3-A Taggert, total depth 6,860 feet, abandoned. Pan American Production Co. No. 4-A Sagarino (D.D.), total depth 7,400 feet, perforated casing 6,730-36 feet, 102 bbls., 12 hours, 7/32-inch choke, tubing pressure 1,100 pounds, casing sealed. Turkey Creek field: Phillips Petroleum Co. No. 1 Pope, perforated casing 5,808-16 feet, 11.54 bbls. in two hours, one-eighth inch choke, tubing pressure 750 pounds, casing pressure 975 pounds. Phillips Petroleum Co. No. 2 Smith, total depth 5,817 feet, perforated casing 5,809-11 feet, 90 bbls., 7/64-inch choke, tubing pressure 765 pounds, casing pressure 975 pounds. Renwar Oil Corp. No. 14 Harrington, perforated casing 3,850-55 feet, jetted 69 bbls., 17 hours, 5/32-inch choke. South Clara Driscoll field: Heep Oil Corp.-Refugio Oil Corp. No. 1 Rogers, total depth 5,334 feet, perforated casing 5,323-31½ feet, 200 bbls., three-sixteenths inch choke, tubing pressure 500 pounds, casing pressure 1,100 pounds. Luby field: Seaboard Oil Corp. No. 9 Shaffer, perforated casing 5,058-68 feet, 5 bbls. per hour, one-eighth inch choke.

Refugio County

Tomoconnor field: Hewitt & Dougherty No. 72 Lambert, total depth 6,200 feet, abandoned. Copano Oil Co. No. 3 O'Connor, perforated 5,909-23 feet, 550 bbls., one-quarter inch choke. No. 5 O'Connor, perforated casing 5,905-15 feet, 540 bbls., one-quarter inch choke. Quintana Petroleum Co. No. 30 O'Connor, total depth 5,930 feet, 975 bbls., one-quarter inch choke. L. A. Nordan No. 7-B O'Connor, perforated casing 5,907-15 feet, 600 bbls., one-quarter inch choke, tubing pressure 800 pounds, casing pressure 875 pounds.

San Patricio County

Midway field: Harlan Grimes No. 2 Coggin, perforated casing 5,330-45 feet, 240 bbls., 5/32-inch choke. East White Point field: Plymouth Oil Co. No. 2 Owens, total depth 5,667 feet, 5½ bbls. per hour, 7/64-inch choke, tubing pressure 900 pounds, casing pressure 1,075 pounds. Plymouth Oil Co. No. 1 J. A. Teeter, total depth 5,658 feet, 5 bbls. per hour, 7/64-inch choke, tubing pressure 1,000 pounds, casing pressure 1,125 pounds (shut in).

Victoria County

Wildcat: Superior Oil Corp. No. 1 Robertson, total depth 5,529 feet, abandoned.

Webb County

Oilton field: W. F. Houser No. 1 F. G. Garcia and C. G. Villareal, total depth 2,524 feet, perforated casing 2,492-96½ feet, 75 bbls.

Men Who Know BRAKE LINING Say—

GATKE

for Oil Field Applications

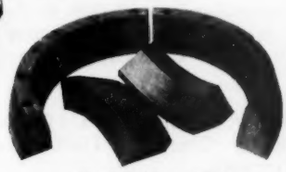
Deep-Well Woven Brake Lining

Why—because fast and steady performance of their equipment is essential. They must have the best and be assured of—

- **Smooth pickup—Velvet release regardless of Load—Heat or Weather.**
- **Performance with Safety.**
- **Fewer adjustments and replacements.**
- **Positive control—Uniform action.**
- **Lower Costs—Greater efficiency.**

Operators of Oil Field equipment know from experience that it pays to use GATKE. It means the difference between PROFIT and LOSS.

Custom-Bilt Moulded Brake Blocks



Double Cone Type Moulded Friction Blocks

Moulded Clutch Blocks for Gas Engines

Solving YOUR Brake and Friction problems is OUR Business. Write for complete details.

GATKE CORPORATION

228 N. La Salle St. Gatke QUALITY Chicago, Ill.

Canadian Fields

Completions and Operations in Northwest and in Ontario

By VICTOR LAURISTON

CHATHAM, Ontario, July 23.—Pipe line runs from Turner Valley to the major refineries at Calgary in June totaled 418,287 bbls. compared with 448,363 bbls. in May. Deliveries to Imperial Oil Refineries in June comprised 29,222 bbls. of naphtha and 265,196 bbls. of crude compared with 28,575 bbls. of naphtha and 277,599 bbls. of crude in May. Deliveries to British American Oil Co. in June were 639 bbls. of naphtha and 123,230 bbls. of crude against 538 bbls. of nahptha and 141,651 bbls. of crude in the previous month. Naphtha production taken by the refineries now approximates only 1,000 bbls. a day, though there are some sales in the field.

Alberta Production Figures

Official figures show that crude production from all Alberta fields in May established a new high of 546,719 bbls. compared with 447,241 bbls. in April. The previous record figure was 467,732 bbls. in March. Turner Valley limestone production increased from 442,752 bbls. in April to 540,919 bbls. in May, and Turner Valley shallow production from 431 to 891 bbls. Red Coulee light crude was down from 1,214 to 1,153 bbls. while Wainwright heavy crude increased from 958 to 1,140 bbls. The Dina-Ribstone production increased from 376 to 501 bbls., and the Taber field from 1,510 to 2,115 bbls.

In the Turner Valley field in May Royalite Oil Co. continued the largest producing unit, with 70,663 bbls. of crude and 28,985 bbls. of naphtha. Other major producers were Brown Oil Corp., 54,037 bbls.; Davies Petroleums, 37,943 bbls.; Prairie Royalties No. 1, with 33,963 bbls.; Commoil No. 1, 29,235 bbls.; West Turner Petroleums No. 1, 25,707 bbls.; and National Petroleum Corp., 24,652 bbls.

Alberta production for the five months of 1938 was 2,307,475 bbls. compared with 2,796,908 bbls. for the entire 12 months of 1937, a previous record. For the five months of 1937 production was 768,630 bbls.

Turner Valley Potentials

Official figures show 54 crude producing wells in Turner Valley with aggregate potential of 51,652 bbls. a day according to government-supervised tests. This is a potential of 18,852,980 bbls. a year. The largest well is Frontier Royalties No. 1, with 5,078 bbls. a day, other major producers being: Vulcan Brown Petroleums, 3,018 bbls.; Prairie Royalties, 2,718 bbls.; Sundance Royalties, 2,572 bbls.; West Turner Petroleums No. 1, 2,321 bbls.; Royalite Oil Co. No. 30, 2,277 bbls.; Commoil No. 1, 2,031 bbls. There are 13 wells between 1,000 and 2,000 bbls., and the remaining producers range from 926 bbls. down to 10 bbls. a day.

Turner Valley Producers

In section 17-18-2w5, Sundance Royalties No. 1, LSD 9, with potential of 2,572 bbls. a day was treated with 5,000 gallons of acid, and is testing increased production. Coronation Royalties No. 1, LSD 15, same section, with temporary potential of 582 bbls. was treated with 9,000 gallons and is testing. In section 20-18-2w5, United-Brown Petroleums No. 5, LSD 1, with 789 bbls. temporary potential, is finishing official test after acid treatment with 5,000 gallons. In section 29-18-2w5, Model-Spooner-Reward No. 2, with 1,213 bbls. temporary potential, has been treated with 5,000 gallons.

In section 5-19-2w5, Vulcan-Brown Petroleums No. 1, LSD 10, finished at 7,459 feet with 3,018 bbls. temporary potential, is completing test for permanent potential.

In section 29-18-2w5, Globe Royalties No. 1, LSD 7, finished at 7,403 feet with around 450 bbls. a day, is shooting the lime horizon with perforating gun to increase production. About 100 bullets are shot into the lime, after which 5,000 gallons of acid are applied. This is the first use of the perforating gun in combination with acid treatment in the Turner Valley crude area.

Tests in the Lime

Four west flank tests are finished in the limestone. In West Central Turner Valley, Mercury Royalties No. 1, LSD 8, section 5-19-2w5, which got the Madison at 6,114 feet, is below 6,404 feet. Location is immediately southeast of Vulcan-Brown No. 1 producer, and results in this test will have a considerable bearing on future development in the west central area.

In section 32-18-2w5, West Turner Petroleums No. 2, LSD 7, is below 6,872 feet, after getting the Madison lime at 6,710 feet.

In section 29-18-2w5, Royalite Oil Co. No. 31, LSD 6, got the Madison limestone at a record depth of 7,590 feet, and cemented casing at 7,600 feet. Location is one of the farthest west in the crude oil area, and nearly a mile west of the easterly line of crude production. In section 17-18-2w5, Royalite Oil Co. No. 32, LSD 8, got the Madison at 6,800 feet and cemented casing at 6,806 feet.

West Flank Drilling

In section 5-19-2w5, West Central Turner Valley, Royalite Oil Co. No. 34, LSD 7, offsetting Vulcan-Brown No. 1 producer to the south, is below 210 feet after cementing surface casing at 202 feet. Royalite No. 33, LSD 2, is below 5,807 feet after getting the Benton-Blairmore contact at 5,450 feet.

In section 6-19-2w5, East Crest Oil Co. No. 4, LSD 8, is at 2,320 feet.

In section 32-18-2w5, Vantage Oils No. 1, S half LSD 12, is standing at 96 feet. Davies Petroleums No. 4 Trans-Canada, LSD 10, is below 3,645 feet after getting the Benton formation at 2,360 feet. West Turner Petroleums No. 3, LSD 6, is below 3,160 feet.

In section 29-18-2w5, Commoil No. 2, LSD 10, is below 6,692 feet. Command Oils No. 1, LSD 14, is below 2,933 feet. P. & H. Development Co. No. 1 Alco, LSD 13, is standing at 1,370 feet.

In section 20-18-2w5, Consolidated Royalties No. 1, LSD 14, is below 6,676 feet. Producers Crude Corp. No. 1, LSD 11, is resuming from 3,028 feet after changing to rotary equipment. Sunset Oils No. 2, LSD 7, is below 6,174 feet. York Oils No. 1, LSD 2, is below 6,202 feet.

In section 17-18-2w5, Extension Royalties No. 1, LSD 14, is below 2,630 feet. Anglo-Canadian Oil Co. No. 3, LSD 10, has spudded. Location is south of Coronation No. 1, southwest of Prairie No. 1, and west of Sundance No. 1, all producers.

In section 16-18-2w5, Brown Oil Corp. No. 5, LSD 12, is in the Benton formation below 4,052 feet. Richwell Oil Co. No. 1, LSD 5, is below 2,897 feet. The Richwell company has been reorganized with the following officers: President, Dr. R. D. Niedig, Calgary; vice president, Frank Webster, Calgary; directors, W. S. Henderson, F. L. Burnet, Calgary; M. M. O'Brien, Trail, British Columbia. Arrangements have been made whereby Neil McQueen and associates of Vancouver will complete the well, with Newell & Chandler handling the drilling contract, using rotary equipment.

In the same section, Royal Canadian Oil Co. No. 2, LSD 4, is resuming from 3,150 feet after cementing 10-inch casing and changing to rotary equipment. Okalta Oil Co. No. 7, LSD 3, has cemented 10-inch casing at 3,000 feet and is waiting for rotary.

In the far south, Anglo-Canadian Oil Co. No. 2, LSD 2, section 33-16-2w5, is below 3,332 feet.

Okalta Deep Test

West of the proven crude area, Okalta Oil Co. No. 6, LSD 3, section 30-18-2w5, is below 9,300 feet after getting the Home sand at 9,202 feet. Good shows of oil and gas have been encountered but drilling will be continued to test the lime, expected at 9,500 feet.

In section 31-18-2w5, Anglo-Canadian Oil Co. No. 1, LSD 16, is below 3,437 feet.

North Turner Valley

In North Turner Valley, Phillips Royalties No. 1, LSD 16, section 16-20-3w5, is below 7,080 feet. Production test may be made of the Home sand before deepening to the Madison limestone.

Home Oil Co. No. 2 Millarville, LSD 6, section 33-20-3w5, is below 4,334 feet.

Anglo-Canadian Operations

Completion of Frontier Royalties No. 1, LSD 11, section 16-18-2w5, with open flow of 7,617 bbls. a day and official potential of 5,078 bbls. brings Anglo-Canadian Oil Co. to the fore among independent Turner Valley producers, with a total of 11 producing wells and aggregate potential of 15,506 bbls. a day. Deliveries by wells of the Anglo-Canadian group to Royalite Oil Co. in June totaled 101,177 bbls. valuel at $126,451; in addition Spy Hill Royalties No. 1, not on proration, delivered 3,276 bbls. valued at $3,931 to Central Distributors at Brandon, Manitoba. The Anglo-Canadian company, in addition to sponsoring Extension Royalties No. 1, has three wells of its own drilling.

West Turner Acreage

West Turner Petroleums, Ltd., is negotiating for 240 acres in section 7-19-2w5, comprising LSDs 3, 4, 5, 6, 12 and 13. Acreage is about 1 mile north and one-half mile west of the proven area and in line with a possible extension of production to the northwest.

(Continued on Page 241)

HERE'S my picture. It's not retouched. It shows what I look like and the result of impingement, cavitation, sulphide, and chloride attacks.

The company I worked for did not know what to do, so they sent for D. W. Haering & Company, Inc. They corrected the conditions immediately with 100 P P M of Chrom Glucosate and saved my company quite a bit of money, because I am an expensive piece of machinery.

You, too, can save money by sending for a Haering expert. Haering & Company Glucoside Derivatives will save you money and trouble.

Service facilities in: Wichita, San Francisco, St. Louis, Pittsburgh, Houston, New York, Atlanta, Nashville, Minneapolis, Chicago.

WRITE FOR LATEST BOOKLET

D. W. HAERING & CO., INC.

3410 W. Monroe St. - - - - - - Chicago

WILDCAT OPERATIONS

CALIFORNIA

IMPORTANT WELLS AND NORTHERN CALIFORNIA WILDCATS

Company, well, location and county—	S.T.R.	Depth	Status
Wilshire Oil, No. 1 Hollister, Gaviota, Santa Barbara	35- 5-33	4,650	P.B. 4,292
Montgomery, H. S., No. 1 Wagner, Capitan, S. Barb.	tideland	1,302	well P.B.
South Crude Oil, No. 2-191, Coal Oil Point, S. Barbara	tideland	5,510	redrlg. 4,179
Carpinteria Oil, No. 1 Carpinteria, Santa Barbara	32- 4-25	2,440	sd. sh. drlg.
Hancock-Bush, No. 4 Hopkins, S. Maria, S. Barbara	30-10-33	4,278	cleaning out
Hancock-Bush, No. 3 Cal. Lands, Santa Maria, S. Barb.	30-10-33	3,371	sd. sh. drlg.
Moore, E. H., No. 10 Sugar, Santa Maria, S. Barbara	19-10-34	5,157	Schist; drlg.
Union Oil, No. 3 Vicente, Santa Maria, S. Barbara	21-10-34	5,322	flow 485 b.d.
Union Oil, No. 5 Vincent, Santa Maria, Santa Barbara	25-10-34	4,635	sd. sh. drlg.
Union Oil, No. 2 Malory, Santa Maria, Santa Barbara	27-10-34	1,205	sd. sh. drlg.
Sunshine Oil, No. 1 Girard, Santa Maria, S. Barbara	27-10-34	4,192	sd. sh. drlg.
Greathouse Oil, No. 1 Fortier, Santa Maria, S. Barb.	27-10-34	3,590	sd. sh. drlg.
Standard Oil, No. 1, Cat Canyon, Santa Barbara	27- 9-33	6,054	sd. sh. drlg.
Douglas Oil, No. 1 Stratton, Los Alamos, S. Barbara	8- 8-33	6,238	sd. sh. drlg
Barnsdall Oil, No. 3 Tognazzini, Gato Ridge, S. Barb.	9- 8-32	3,800	O. S. drlg.
United West. Oil, No. 1, Los Olivos, Santa Barbara	16- 7-30	3,270	idle
High Mesa Oil, No. 1 Butcher, Ojai, Ventura	16- 4-22	1,691	fishing
Holly Dev., No. 1 Macrate, Ojai, Ventura	27- 4-23	2,940	br. sh. drlg.
Texas Co., No. 5 Yale, South Mountain, Ventura	13- 3-21	6,125	fish D.P.
Merchants Pet., No. 1, Sespe, Ventura	1- 4-20	660	hd. sd. drlg.
St. Louis Oil, No. 1 Williamson, Sespe, Ventura	1- 4-20	510	cleaning out
Stalling & Senter, No. 1, Timber Canyon, Ventura	24- 4-21	1,440	sd. sh. drlg.
Section 20 Oil, No. 1, Sespe, Ventura	20- 5-19	1,701	sd. sh. drlg.
Darby Oil, No. 1 Cohn, Moor Park, Ventura	7- 2-19	3,625	idle
Continental Oil, No. 9 Grubb, San Miguelito, Ventura	24- 3-24	1,795	sd. sh. drlg.
C. C. M. Oil, No. 7 Oakgrove, Padre Canyon, Ventura	23- 3-24	3,002	br. sh. drlg.
C. C. M. Oil, No. 7-C Hobson, Rincon, Ventura	8- 3-24	1,794	sd. sh. drlg.
Richfield Oil, No. 8-F Hobson, Rincon, Ventura	8- 3-24	3,150	O. S. drlg.
Tide Water A. O., No. 19 V.L.W., Ventura Ave., Vent.	26- 3-23	9,906	flow 1,470 b.d.
Tide Water A. O., No. 39 V.L.W., Ventura Ave., Vent.	24- 3-23	5,661	sd. sh. drlg.
Tide Water A. O., No. 75 Lloyd, Ventura Ave., Vent.	26- 3-23	5,862	sd. sh. drlg.
Tide Water A. O., No. 111 Lloyd, Ventura Ave., Vent.	27- 3-23	9,401	hd. sd. drlg.
Tide Water A. O., No. 126 Lloyd, Ventura Ave., Vent.	23- 3-23	....	rigged up
Tide Water A. O., No. 127 Lloyd, Ventura	27- 3-23	7,596	sd. sh. drlg.
Tide Water A. O., No. 7 Hartman, Ventura Ave., Vent.	22- 3-23	6,301	sd. sh. drlg.
Tide Water A. O., No. 11, McGonigle, Vent. Ave., Vent.	23- 3-23	7,640	hd. sd. drlg.
Shell Oil, No. 96 Taylor, Ventura Ave., Ventura	28- 3-23	6,888	sd. sh. drlg.
Shell Oil, No. 31 Edison, Ventura Ave., Ventura	20- 3-23	7,798	fish tubing
Shell Oil, No. 37 Gosnell, Ventura Ave., Ventura	28- 3-23	8,618	P. B. 8,470
General Pet., No. 18 Barnard, Ventura Ave., Ventura	21- 3-23	7,772	sd. sh. drlg.
Lloyd Corp., No. 2 Dabney-Lloyd, Ventura Ave., Vent.	24- 3-23	2,482	sd. sh. drlg.
Goodrum, George, No. 1 Baron, Devils Den, Kern	24-25-18	1,190	will deepen
Gibson Oil, No. 3 Alferitz, Devils Den, Kern	14-25-18	626	hd. sd. drlg.
Franco-Western Oil, No. 15, McKittrick, Kern	8-30-22	2,196	rig to pump
Lyse and Sonne, No. 1 Pasadena, McKittrick, Kern	28-30-22	3,449	br. sh. drlg.
Randan Pet., No. 1 Theta, Lost Hills, Kern	3-26-20	1,625	cleaning out
Tide Water A. O., No. 11-A Williamson, L. Hills, Kern	11-26-20	1,582	pump 135 b.d.
Shell Oil, No. 1 Voight, Antelope Plains, Kern	32-27-20	910	sd. sh. drlg.
Belridge Oil, No. 27-5, North Belridge, Kern	27-27-20	8,470	flow 30 b.d.
Richfield Oil, No. 2 Belridge, North Belridge, Kern	22-27-20	7,760	br. sh. drlg.
Texas Co., No. 4 Martin, North Belridge, Kern	22-27-20	8,171	fish D. C.
Crestmont Oil, No. 4 Staley, Round Mountain, Kern	8-28-29	1,639	O. S. drlg.
Shell Oil, No. 1-3 Olcese Estate, R. Mountain, Kern	16-28-29	1,714	pump 75 b.d.
Shell Oil, No. 5-2 Olcese, Round Mountain, Kern	22-28-29	2,017	dry; abd.
Honolulu Oil, No. 48, Round Mountain, Kern	20-28-29	2,011	O. S. drlg.
Italo Pet., No. 34 Cauley, Kern Front, Kern	16-28-27	2,905	pump 130 b.d.
Oils, Inc., No. 4 Seven Spot, Kern River, Kern	13-28-27	1,255	P. B. 1,251
Helm & Smith, No. 5A Kernco, Kern River, Kern	34-28-28	575	O. S. drlg.
Barnhart & Morrow, No. 1-2, Kern River, Kern	19-28-28	1,185	cleaning out
Hast Oil Co., No. 4 Kern, Kern River, Kern	34-28-28	240	sd. sh. drlg.
Crestmont Oil, No. 1 Durnal, Mount Poso, Kern	24-27-28	740	sd. sh. drlg.
B-A Oil, No. 1 Glide, Mount Poso, Kern	31-27-28	1,750	deepening
Federal Drlg., No. 3 Glide, Mount Poso, Kern	13-26-28	962	sd. sh. drlg.
Western Gulf Oil, No. 4 Sawyer, Fruitvale, Kern	27-29-27	3,837	O. S. drlg.
Western Gulf Oil, No. 37-B, KCL, Fruitvale, Kern	14-29-27	3,001	sd. sh. drlg.
Texas Co., No. 1 Lowe, Fruitvale, Kern	7-29-27	7,074	hd. sh. drlg.
Meridian Oil, No. 4 Fee, Fruitvale, Kern	23-29-27	3,055	O. S. drlg.
Hogan Pet., No. 5 Peters, Mountain View, Kern	5-31-29	5,212	will deepen
Stevens, R. W., No. 1, Caliente Creek, Kern	22-30-30	1,020	gr. sd. drlg.
Petrex, Inc., No. 1 Edison, Arvin, Kern	32-31-30	5,240	dry; abd.
Continental Oil, No. 3-A, KCL, Wasco, Kern	8-27-24	10,665	sd. sh. drlg.
Continental Oil, No. 1 Seaboard, KCL, Wasco, Kern	26-27-24	12,680	sd. sh. drlg.
Standard Oil, No. 8-1-B, KCL, Wasco, Kern	17-27-24	10,133	sd. sh. drlg.
Standard Oil, No. 1 Mushrush, Wasco, Kern	7-27-24	7,582	sd. sh. drlg.
Superior Oil, No. 3 Geissinger, Bravo, Kern	35-28-25	10,580	sd. sh. drlg.
Superior Oil, No. 1 Anderson, Rio Bravo, Kern	35-28-25	11,608	shows water
Superior Oil, No. 1 Helbling, Rio Bravo, Kern	1-29-25	12,264	O. S. drlg.
Union Oil, No. 2-34, KCL, Rio Bravo, Kern	34-28-25	11,204	redrlg. 6,340
Union Oil, No. 3-34, KCL, Rio Bravo, Kern	34-28-25	11,470	flow 3,600 b.d.
Union Oil, No. 4-34, KCL, Rio Bravo, Kern	34-28-25	9,397	sd. sh. drlg.
Getty Oil, No. 2 Ramsey, Rio Bravo, Kern	35-28-25	10,370	sd. sh. drlg.
General Pet., No. 1 Wagoner, Rio Bravo, Kern	35 28-25	10,270	sd. sh. drlg.
General Pet., No. 4 Wagoner, Rio Bravo	35-28-25	6,990	sd. sh. drlg.
Standard Oil, No. 18-1 KCL, Una, Kern	29-28-26	10,205	sd. sh. drlg.
Shell Oil, No. 83-35 KCL, McFarland, Kern	35-26-25	9,674	sd. sh. drlg.
Tide Water A. O., Well No. 1, Pond, Kern	17-26-25	7,475	sd. sh. drlg.
Dilmar Oil, No. 1 Quinn, Jasmin, Kern	15-25-27	2,956	P. B. 2,882
Standard Oil, No. 11-15 KCL, Greeley, Kern	18-29-26	7,735	fish tubing
Standard Oil, No. 2 Fleishauer, Greeley, Kern	20-29-26	8,972	sd. sh. drlg.
Superior Oil, No. 1 Krause, Greeley, Kern	21-29-26	8,178	will deepen
Continental Oil, No. 2-B KCL, Rosedale, Kern	12-29-26	4,690	sd. sh. drlg.
Continental Oil, No. 1-E KCL, Stevens, Kern	17-30-26	8,574	P. B. 8,230
Standard Oil, No. 15-2 KCL, Canfield Ranch, Kern	27-30-26	8,330	sd. sh. drlg.
Shell Oil, No. 61-29-A KCL, Ten Section, Kern	29-30-26	7,670	sd. sh. drlg.
Shell Oil, No. 56-30-A KCL, Ten Section, Kern	30-30-26	8,220	O. S. drlg.
Shell Oil, No. 2-32-B KCL, Ten Section, Kern	32-30-26	5,992	sd. sh. drlg.
Shell Oil, No. 32-32-B KCL, Ten Section, Kern	32-30-26	8,202	flow 1,750 b.d.
Shell Oil, No. 67-20-B KCL, Ten Section, Kern	20-30-26	914	sd. sh. drlg.
Shell Oil, No. 52-14-A KCL, Canal, Kern	14-30-25	8,180	O. S. drlg.
Ohio Oil, No. 7-E KCL, Canal, Kern	14-30-25	8,170	O. S. drlg.
Ohio Oil, No. 8-A KCL, Buena Vista Lake, Kern	32-31-26	11,186	testing
Texas Co., No. 1 Pioneer, Midway-Sunset, Kern	33-11-23	8,856	hd. sh. drlg.
Midway Peerless Oil, No. 16, Midway-Sunset, Kern	15-31-22	1,210	pump 20 b.d.
Midway Peerless Oil, No. 17, Midway-Sunset, Kern	15-31-22	922	O. S. drlg.
Signal Oil, No. 5 Kendon, Midway-Sunset, Kern	35-32-23	1,701	cleaning out
Cates, M. B., No. 8 Special, Midway-Sunset, Kern	2-11-24	732	sd. sh. drlg.
Mascot Oil, No. 3 Midway, Midway-Sunset, Kern	36-32-23	1,672	sd. sh. drlg.
Magnuson, C. A., No. 1 Midway, Midway-Sunset, Kern	19-31-23	713	sd. sh. drlg.
Surprise Oil, No. 3, Midway-Sunset, Kern	36-32-23	1,221	rig to pump
National Oil, No. 18, Midway-Sunset, Kern	35-32-23	1,898	O. S. drlg.
Vanguard Oil, No. 1 Heavilin, Midway-Sunset, Kern	34-32-24	3,920	cleaning out
Petrol Corp., No. 33-5 Reserve, Tejon Ranch, Kern	33-11-19	4,582	looks bad
Shell Oil, No. 4-26 KCL, San Emidio, Kern	26-11-22	9,850	sd. sh. drlg.
Richfield Oil, No. 1 KCL, Wheeler Ridge, Kern	28-11-20	5,190	sd. sh. drlg.
Pure Oil, No. 1 SPL, Cantua, Fresno	31-18-17	10,930	hd. sh. drlg.
Magnet Oil, No. 2 Fearon, Fresno	18-20-15	2,780	cleaning out
Jacalitos Oil, No. 1, Jacalitos Hills, Fresno	14-21-15	6,176	sd. sh. drlg.
Pet. Sec. Co., No. 88 Grimes, Guijarral Hills, Fresno	12-20-15	2,484	sd. sh. drlg.
Texas Co., No. 19 Mohawk, Guijarral Hills, Fresno	12-20-15	2,070	sd. sh. drlg.
Universal Consd. Oil, No. 1 Leavitt, Guij. Hills, Fr.	12-20-15	3,990	sd. sh. drlg.
Dauphin Dev., No. 1 Boone, Alcalde, Fresno	30-21-14	3,778	dry; abd.
K.N.D.A., No. 38-6-Q Kettleman North, Kings	6-22-18	2,676	sd. sh. drlg.
K.N.D.A., No. 27-8-Q Kettleman North, Kings	6-22-18	5,570	cleaning out
K.N.D.A., No. 58-8-Q Ketttleman North, Kings	8-22-18	5,181	sd. sh. drlg.
K.N.D.A., No. 27-16-Q Kettleman North, Kings	16-22-18	8,385	gr. sd. drlg.
K.N.D.A., No. 38-16-Q Kettleman North, Kings	16-22-18	2,390	sd. sh. drlg.
K.N.D.A., No. 58-16-Q Kettleman North, Kings	16-22-18	8,100	flow 4,290 b.d.
K.N.D.A., No. 43-20-Q Kettleman North, Kings	20-22-18	8,353	sd. sh. drlg.
K.N.D.A., No. 27-22-Q Kettleman North, Kings	22-22-18	7,591	sd. sh. drlg.
Standard Oil, No. 46-13-H, Kettleman North, Fresno	13-21-16	10,836	completing
Standard Oil, No. 78-1-P, Kettleman North, Kings	1-22-17	8,031	sd. sh. drlg.
Standard Oil, No. 21-13-P Kettleman North, Kings	13-22-17	7,248	redrlg. 6,850
Standard Oil, No. 74-7-Q, Kettleman North, Kings	7-22-18	8,476	sd. sh. drlg.
Standard Oil, No. 61-21-Q, Kettleman North, Kings	21-22-18	5,684	cmtd. 5,648
Texas Co., No. 1 Lewis, King City, Monterey	13-19- 5	1,872	cleaning out

KEY TO ABBREVIATIONS USED IN DRILLING REPORTS

Abd., abandoned.
Acd., acidized.
B.O., barrels of oil.
B.P.D., barrels per day.
B.D., barrels daily.
B.P., back pressure.
B.R., building rig.
Br. sh., brown shale.
B.S., basic sediment.
Cd. or Crd., cored.
C.D., corrected depth.
Cg., coring.
Cmtd., cemented.
C.O., cleaning out.
Comp., completed.
Compr., compressor.
C.P., casing pressure, also cement through perforations.
Csg., casing.
D.D., drilling (or drilled) deeper.
Drlg. or Drg., drilling.
Drk. or Dk., derrick.
D.S., drill stem.
D.&A., dry and abandoned.
Fsg., fishing.
Gbo., gumbo.
G.I., gas injection.
Gr., gravity.
Gr. sd., gray sand.
Grn. sh., green shale.
Hd. sd., hard sand.
H.F.W., hole full of water.
I.P., initial production.
L., lime.
L.D.D., later drilled deeper.
Lnr., liner.
Loc., location.
M.I.M., moving in material.
M.I.R., moving in rig.
M.I.R.T., moving in rotary tools.
M.O.T., milling on tools.
O.I.H., oil in hole.
O.S., oil sand.
O.T.D., old total depth.
O.W.D.D., old well drilling deeper.
O.W.P.B., old well plugging back.
P.B., plugging or plugged back.
P.B.P., pulling or pulled big pipe.
P.L., pipe line.
P.L.O., pipe line oil.
Pmpg., pumping.
P.O.P., putting on pump.
P.P., pulled pipe.
Rd. sd., red sand.
Rd. sh., red shale.
Recmt., recemented.
Rmg., reaming.
Redrlg., redrilling.
Rng., running.
R.O.G., rig on ground.
R.P., rock pressure.
R.U., rigging up.
R.U.R., rigging up rotary.
R.U.S.T., rigging up standard tools.
R.&T., rods and tubing.
S. or Sd., sand.
S.D., shut down.
Sdy. sh., sandy shale.
Sdtr., or St. sidetracking.
S.D.P.L., shut down for pipe line.
S.D.O., or S.D.W.O., shut down awaiting orders.
S.G., show gas.
Sh.&L., shale and lime.
S.I., shut in.
S.I.P., shut in, prorated.
S.L.M., steel line measurement.
S.O., show oil.
S.O.G.&W., show of oil, gas and water.
Spdg. or Spd., spudding.
S.R., straightreaming.
Stdg., standardizing (also standing).
S.W., salt water.
Swbg., swabbing.
T.A., temporarily abandoned.
Tbg., tubing.
T.D., total depth.
T.P., tubing pressure.
Tr., tract.
U.R., underreaming.
W.I.H., water in hole.
W.O., workover.
W.O.C. or W.O.C.S., waiting for cement to set.
W.P., working pressure.
W.S.O., water shutoff.
W.S.S.O.K., water shutoff O.K.
W.S.O.N.G., water shutoff no good.
W.S.R. or W.O.S.R., awaiting standard rig.
Wtr., water.

Texas Co., No. 1 Gabilan Core Hole, King City, Mont.	10-21-10	2,015	sds. sh. drlg.
Cal Pet. Prod., No. 1 Jobe, Elkhorn, San Luis Obispo	6-10-25	2,064	cleaning out
Cal Pet. Prod., No. 1 Irons, Elkhorn, San Luis Obispo	19-10-24	1,501	resume work
Hancock Oil, No. 1 Dick, Huasna, San Luis Obispo	30-12-33	4,638	sd. sh. drlg.
Ohio Oil, No. 1-A Willard, Willows, Glenn	18-20- 2	5,750	cmtd. 5,653
Richfield Oil Corp., No. 1 Potrero Hills, Solano	10- 4- 1	3,373	15,000 m.c.f.
Amerada Pet., No. 1 California Lands, Colusa, Colusa	34-16- 1	5,120	sd. sh. drlg.

IMPORTANT WELLS AND SOUTHERN CALIFORNIA WILDCATS

Company, well, location and county—	S.T.R.	Depth	Status
Apex Pet., No. 3 Elsie, El Segundo, Los Angeles	12- 3-15	7,417	flow 550 b.d.
Burnoel Pet., No. 1 Elsie, El Segundo, Los Angeles	12- 3-15	7,336	cmtd. 7,075
Sovereign Oil, No. 2 Community, El Segundo, L. A.	12- 3- 5	2,981	sd. sh. drlg.
Rolling Hills Oil, No. 1 Weston, Palos Verdes, L. A.	27- 4-14	4,491	sd. sh. drlg.
Gypsy Oil, No. 16 Getty, Torrance, L. A.	14- 4-14	5,008	cleaning out
Andrews & Mitchell, No. 11 Kirk, Torrance, L. A.	14- 4-14	4,969	flow 640 b.d.
Allison & Oglesby, No. 1, Torrance, Los Angeles	14- 4-14	4,943	sd. sh. drlg.
Calmont Oil, No. 1 Talbert, Torrance, Los Angeles	23- 4-14	4,955	flow 610 b.d.
Consolidated Pet., No. 2, Torrance, Los Angeles	23- 4-14	4,672	sd. sh. drlg.
Camp, C. W., No. 13, Torrance, Los Angeles	23- 4-14	5,009	P. B. 4,965
Cal-Oak Oil, No. 1 Devils, Torrance, Los Angeles	23- 4-14	4,205	cleaning out
Calridge Oil, No. 1 Meyer, Torrance, Los Angeles	23- 4-14	4,760	sd. sh. drlg.
Doyle Pet., No. 3-A Getty, Torrance, Los Angeles	14- 4-14	5,634	P. B. 5,060
Elexico Oil, No. 2 Allen, Torrance, Los Angeles	23- 4-14	4,872	sd. sh. drlg.
Emerald Oil, No. 2 Barto, Torrance, Los Angeles	23- 4-14	3,259	sd. sh. drlg.
Eriksson, G., No. 1 Fortuna, Torrance, Los Angeles	23- 4-14	3,760	milling 3,570
Foster Corp., No. 1 Thomas, Torrance, Los Angeles	23- 4-14	3,900	cleaning out
Foster Corp., No. 2 Thomas, Torrance, Los Angeles	23- 4-14	3,900	fishing
Ind. Drlg., No. 1 Mitchell, Torrance, Los Angeles	15- 4-14	4,966	flow 410 b.d.
Jewel Oil, No. 1 Lomita, Torrance, Los Angeles	23- 4-14	1,998	sd. sh. drlg.
Jones-Long Oil, No. 1 Lyons, Torrance, Los Angeles	23- 4-14	4,940	sd. sh. drlg.
Kenber Oil, No. 1 Berken, Torrance, Los Angeles	23- 4-14	3,795	cleaning out
Krause & Baker, No. 2 Gladys, Torrance, L. Angeles	14- 4-14	3,795	rigged up
Kiesau & Ford, No. 1 Rhoads, Torrance, L. Angeles	23- 4-14	3,790	redrlg. 3,550
Kovell Oil, No. 1 Lomita, Torrance, Los Angeles	22- 4-14	4,920	flow 625 b.d.
Lomita Drlg Co., No. 2 Stevenson, Torrance, L. A.	22- 4-14	4,580	sd. sh. drlg.
McCowan, C. T., No. 1-A Lindis, Torrance, L. Angeles	23- 4-14	4,796	sd. sh. drlg.
Maldum Oil, No. 1 R. K., Torrance, Los Angeles	23- 4-14	3,770	rebldg. rig
Morton & Elder, No. 1 Mitchell, Torrance, L. Angeles	23- 4-14	4,977	sd. sh. drlg.
McDonald & Burns, No. 2 Moore, Torrance, L. A.	23- 4-14	5,002	sd. sh. drlg.
McDonald & Burns, No. 9 Moore, Torrance, L. A.	23- 4-14	3,642	sd. sh. drlg.
McCaslin, W. E., No. 2, Torrance, Los Angeles	14- 4-14	4,418	sd. sh. drlg.
McWherter, C. L., No. 1 Lomita, Torrance, L. Angeles	23- 4-14	2,983	sd. sh. drlg.
M. P. S. Oil, No. 1 Julian, Torrance, Los Angeles	23- 4-14	3,801	milling 430
M. P. S. Oil, No. 2 Julian, Torrance, Los Angeles	23- 4-14	3,787	rebldg. rig
Charleston Oil, No. 3 Marcoux, Torrance, L Angeles	14- 4-14	5,001	pump 50 b.d.
Hampshire Oil, No. 1, Torrance, Los Angeles	23- 4-14	4,991	pump 210 b.d.
Hughes, W., No. 2, Torrance, Los Angeles	14- 4-14	5,009	bailing
Hujo Oil, No. 1, Torrance, Los Angeles	14- 4-14	4,979	flow 260 b.d.
Pacific West. Oil, No. 2 Marble, Torrance, L. Angeles	14- 4-14	3,730	rigging up
Pacific West. Oil, No. 1 Hogan, Torrance, L. Angeles	23- 4-14	3,804	rebldg. rig
Peters Royalty, No. 2, Torrance, Los Angeles	14- 4-14	4,880	sd. sh. drlg.
Packard Pet., No. 1 Kelley, Torrance, Los Angeles	22- 4-14	4,982	flow 470 b.d.
Packard Pet., No. 2 Kelley, Torrance, Los Angeles	22- 4-14	4,820	sd. sh. drlg.
Packard Pet., No. 3 Kelley, Torrance, Los Angeles	22- 4-14	3,161	sd. sh. drlg.
Rico Oil, No. 1 Victoria, Torrance, Los Angeles	23- 4-14	4,970	O. S. drlg.
Standard Oil, No. 1-12 Marble, Torrance, L. Angeles	22- 4-14	3,820	cleaning out
Standard Oil, No. 1-13 Marble, Torrance, Los Angeles	22- 4-14	3,810	repair rig
Star Pet., No. 2 G & A, Torrance, Los Angeles	23- 4-14	4,293	sd. sh. drlg.
Sol Oil, No. 1 Lomita, Torrance, Los Angeles	23- 4-14	4,784	sd. sh. drlg.
Silver Strand Oil, No. 1, Torrance, Los Angeles	22- 4-14	3,877	sd. sh. drlg.
Texas Co., No. 11 Wilson, Torrance, Los Angeles	14- 4-14	5,026	P. B. 4,963
Texas Co., No. 12, Wilson, Torrance, Los Angeles	22- 4-14	3,387	sd. sh. drlg.
Imperial Gypsum, No. 2 Getty, Torrance, Los Angeles	14- 4-14	4,915	sd. sh. drlg.
Imperial Gypsum, No. 3 Pathoff, Torrance, L. A.	14- 4-14	3,747	idle
Wilton Oil, No. 5, Torrance, Los Angeles	22- 4-14	3,684	sd. sh. drlg.
Woolner Oil, No. 4 Lomita, Torrance, Los Angeles	15- 4-14	4,682	sd. sh. drlg.
Zenith Oil, No. 1, Torrance, Los Angeles	5- 5-14	3,552	pump 50 b.d.
C.C.M.O. Co., No. 8, Torrance, Los Angeles	15- 4-14	4,160	sd. sh. drlg.
C.C.M.O. Co., No. 16, Torrance, Los Angeles	14- 4-14	3,730	rigging up
Union Oil, No. 58 Callender, Dominguez, Los Angeles	33- 3-13	7,550	redrlg. 6,730
Union Oil, No. 62 Callender, Dominguez, Los Angeles	33- 3-13	7,365	sd. sh. drlg.
Shell Oil, No. 95 Reyes, Dominguez, Los Angeles	33- 3-13	7,478	O. S. drlg.
Shell Oil, No. 96 Reyes, Dominguez, Los Angeles	33- 3-13	2,050	sd. sh. drlg.
Barnsdall Oil, No. 4 Trust, Rosecrans, Los Angeles	18- 3-13	7,800	flow 1,290 b.d.
Barnsdall Oil, No. 9 Rosecrans, Rosecrans, L. Angeles	18- 3-13	7,191	sd. sh. drlg.
Union Oil, No. 20 Rosecrans, Rosecrans, L. Angeles	18- 3-13	7,855	sd. sh. drlg.
Union Oil, No. 21 Rosecrans, Rosecrans, Los Angeles	19- 3-13	7,370	sd. sh. drlg.
Union Oil, No. 22 Rosecrans, Rosecrans, Los Angeles	18- 3-13	7,451	sd. sh. drlg.
Union Oil, No. 23 Rosecrans, Rosecrans, Los Angeles	18- 3-13	7,770	flow 1,650 b.d.
Universal Cons'd., No. 4 Trust, Rosecrans, L. Angeles	18- 3-13	7,199	sd. sh. drlg.
Superior Oil, No. 1 Callender, Rosecrans, Los Angeles	20- 3-13	7,675	flow 340 b.d.
Howard Oil, No. 1 Gordon, Rosecrans, Los Angeles	19- 3-13	6,596	whipstock
Barnsdall Oil, No. 3 S. F., Newhall, Los Angeles	26- 4-17	7,264	flow 1,760 b.d.
Tide Water A. O., No. 1 Porter, San Fernando, L. A.	27- 3-16	1,683	hd. sd. drlg.
Royal Lands, No. 1 Ramona, Castaic, Los Angeles	8- 4-17	936	sd. sh. drlg.
General Pet., No. 3-6-C.C., Los Angeles	2- 5-13	2,880	sd. sh. drlg.
General Pet., No. 40 Harbor, Wilmington, L. Angeles	2- 5-13	2,837	sd. sh. drlg.
General Pet., No. 44 Harbor, Wilmington, L. A.	2- 5-13	2,600	cleaning out
General Pet., No. 1 P. E., Wilmington, L. Angeles	2- 5-13	2,172	sd. sh. drlg.
Bankline Oil, No. 7-U.P., Wilmington, Los Angeles	2- 5-13	2,966	flow 310 b.d.
Burns Oil Corp., No. 1, Wilmington, Los Angeles	32- 4-13	3,671	sd. sh. drlg.
Crail Bros., No. 1 Mackallister, Wilmington, L. A.	33- 4-13	4,020	sd. sh. drlg.
Hancock Oil, No. 10-B, Wilmington, Los Angeles	2- 5-13	4,045	flow 695 b.d.
Hancock Oil, No. 24-C, Wilmington, Los Angeles	2- 5-13	4,192	P. B. 4,065
Hancock Oil, No. 7-D, Wilmington, Los Angeles	2- 5-13	1,993	sd. sh. drlg.
Macson Oil, No. 2-55-G, Wilmington, Los Angeles	32- 4-13	2,970	sd. sh. drlg.
O'Kane & Brain, No. 2 L.B.H.D., Wilmington, L. A.	2- 5-13	1,987	sd. sh. drlg.
Richfield Oil, No. 1-P.D., Wilmington, Los Angeles	2- 5-13	4,385	O. S. drlg.
Richfield Oil, No. 4-P.D., Wilmington, Los Angeles	2- 5-13	4,240	sd. sh. drlg.
Richfield Oil, No. 5-P.D., Wilmington, Los Angeles	2- 5-13	3,644	flow 720 b.d.
Richfield Oil, No. 7-P.D., Wilmington, Los Angeles	2- 5-13	4,235	sd. sh. drlg.
Richfield Oil, No. 8-P.D., Wilmington, Los Angeles	2- 5-13	2,618	sd. sh. drlg.
Richfield Oil, No. 9-P.D., Wilmington, Los Angeles	2- 5-13	2,607	sd. sh. drlg.
Richfield Oil, No. 3-P.G., Wilmington, Los Angeles	2- 5-13	4,450	P. B. 4,387
Republic Pet., No. 1 Harbor, Wilmington, L. Angeles	2- 5-13	4,020	flow 4,750 b.d.
Republic Pet., No. 2 Harbor, Wilmington, L. Angeles	2- 5-13	4,042	flow 5,500 b.d.
Republic Pet., No. 3 Harbor, Wilmington, L. Angeles	2- 5-13	4,060	O. S. drlg.
Selegna Oil, No. 17 Harbor, Wilmington, Los Angeles	32- 4-13	3,595	O. S. drlg.
Tide Water A. O., No. 1 Banning, Wilmington, L. A.	29- 4-13	6,042	hd. sh. drlg.
Universal Cons'd, No. 1 Newport, Wilmington, L. A.	2- 5-13	3,405	sd. sh. drlg.
Union Pacific R. R., No. 84, Wilmington, Los Angeles	3- 5-13	4,015	O. S. drlg.
Union Pacific R. R., No. 85, Wilmington, L. A.	3- 5-13	2,897	sd. sh. drlg.
Union Pacific R. R., No. 87, Wilmington, Los Angeles	3- 5-13	3,450	O. S. drlg.
Union Pacific R. R., No. 11-E, Wilmington, L. A.	3- 5-13	3,917	O. S. drlg.
Union Pacific R. R., No. 1-P.D., Wilmington, L. A.	3- 5-13	4,073	flow 660 b.d.
Union Pacific R. R., No. 3-P. D., Wilmington, L. A.	3- 5-13	3,370	O. S. drlg.
Wilgate Oil, No. 1 Harbor, Wilmington, Los Angeles	2- 5-13	5,670	P. B. 5,453
St. Helens Pet., No. 27 Monterey, Montebello, L. A.	2- 2-12	6,220	O. S. drlg.
St. Helens Pet., No. 28 Monterey, Montebello, L. A.	2- 2-12	5,551	sd. sh. drlg.
St. Helens Pet., No. 2 Eggleston, Montebello, L. A.	2 -2-12	5,360	sd. sh. drlg.
Union Oil Co., No. 2 Paul Howard, Montebello, L. A.	2- 2-12	707	sd. sh. drlg.
Union Oil, No. 2 H. & S., Montebello, Los Angeles	2- 2-12	5,513	sd. sh. drlg.
V-8 Oil, No. 1 Estelle, Montebello, Los Angeles	2- 2-12	5,381	sd. sh. drlg.
West Mon. Oil, No. 2 Seavers, Montebello, L. Angeles	2- 2-12	5,190	sd. sh. drlg.
Standard Oil, No. 1 McDonald, Montebello, L. Angeles	2- 2-12	5,671	sd. sh. drlg.
Herley-Kelley, Inc., No. 1 Burke, Montebello, L. A.	2- 2-12	6,302	flow 2,000 b.d.
McVicar & Rood, No. 2 Manz, Montebello, L. Angeles	2- 2-12	5,660	sd. sh. drlg.
Brookline Oil, No. 1 Drake, Montebello, L. Angeles	2- 2-12	6,444	flow 1,500 b.d.
Security L. & W., No. 1 Tobey, Whittier, Los Angeles	8- 2-11	1,560	cleaning out
Johnston Drlg., No. 34, Long Beach, Los Angeles	13- 4-13	3,650	sd. sh. drlg.
Texas Co., No. 2-3 Foster, Long Beach, Los Angeles	29- 4-12	3,200	redrlg. 2,398
De Soto Oil, No. 1, Long Beach, Los Angeles	30- 4-12	4,252	sd. sh. drlg.
Texas Co., No. 3 Alamitos, Seal Beach, Orange	3- 5-12	4,917	cleaning out
Brea Canyon Oil, No. 48, Brea Canyon, Orange	2- 3-10	4,970	sd. sh. drlg.
Battersby, J. M., No. 1 Carmenita, Orange	21- 3-11	6,000	idle
Severns Drlg., No. 1-A McNally, West Coyote, Orange	24- 3-11	2,172	sd. sh. drlg.
Alford Dev., No. 1 Yorba, Richfield, Orange	29- 3- 9	2,613	sd. sh. drlg.
Shell Oil, No. 1 Cuff, Rchfield, Orange	29- 3- 9	3,096	P. B. 2,930
Shell Oil, No. 1 Swain, Richfield, Orange	28- 3- 9	2,050	sd. sh. drlg.
Shell Oil, No. 1 Hemphill, Richfield, Orange	30- 3- 9	2,480	sd. sh. drlg.
Brown & Co., No. 2 Hurley, Yorba, Orange	22- 3- 9	1,780	sd. sh. drlg.
Beth Oil, No. 1 Dillingham, Yorba, Orange	21- 3- 9	2,338	cmtd. 2, 256
A. V. Oil, No. 1, Costa Mesa, Orange	16- 6-10	3,990	sd. sh. drlg.
Congress Oil, No. 1, Santa Ana, Orange	36- 3- 9	2,980	bailing
South. Count. Oil, No. 1 Club, Serrano, San Bernar.	22- 2- 8	420	idle

OKLAHOMA

Week Ending July 23

NORTHERN OKLAHOMA

Coal County

Carter et al No. 1 Mote, C E½ SW NW sec. 19-2-9. Drlg. 5,058 ft.

Comanche County

Midnite O. & G. Co. No. 1 Howe, NW NW NW sec. 20-2n-12w. Drlg. 452 ft.

Garfield County

I.T.I.O. No. 1 Kechin, C SE SE sec. 17-22-5w. Drlg. 4,695 ft.

Garvin County

H. R. Hollenbach et al No. 1 Butterly, NE NE SE sec. 22-1n-1e. 3,218,000 ft. gas; drlg. 3,025 ft.; S.O.

Hughes County

City of Holdenville No. 1 Fairgrounds, SE SE SE sec. 13-7-8. Drlg. 1,170 ft.

Kay County

Champlin Ref. Co. No. 1 Boehm, SW SW NE sec. 24-27-4. Drlg. 4,081 ft.

Heimerich & Payne No. 1 Sch. Ld., SW SE SW sec. 16-28-1w. Wilcox 3,530 ft.; 2nd Wilcox 3,603 ft.; T.D. 3,645 ft.; flwd. 288 B.O. in 3½ hrs.; flwd. 640 B.O. in 10 hrs. while rng. tbg.; 43 grav.

Clark C. Nye No. 1 Willin, SE SE SW sec. 24-27-4. Cg. 3,016 ft.; S.S.O.&G.; S.D. for mach.

E. J. Shaffer et al No. 1 McKee, NE NW sec. 20-28-1w. T.D. 2,500 ft.; S.D.

Kiowa County

Anderson-Prichard Oil Corp. No. 1 Sch. Ld., SE SE SE sec. 14-6n-17w. Drlg. 1,390 ft.

Hughes & Reese No. 1 Fultz, SE SE SE sec. 10-6-18w. T.D. new hole 1,186 ft.; fsg.

Lincoln County

Indian States No. 1 Bailey, NW NW NE sec. 2-12-5. T.D. 4,238 ft.; 400 ft. oily F.I.H.

Logan County

Superior Oil of Calif. No. 1 McCullev, C W½ NW NW sec. 26-16-4w. Cg. Viola 6,333 ft.; first Wilcox 6,495 ft.; dolomite 6,603-08 ft.; to D.D.

Noble County

Big Chief No. 1 Hoy, SE SE SW sec. 33-21-2w. Miss. 5,050 ft.; drlg. 5,103 ft.

H. R. Hollenback No. 1 Mathews, C SW NW sec. 9-20-1. Drlg. 1,592 ft.

Texas-Canadian Oil Corp. No. 1 Schultz, NE NE NE sec. 29-23-1w. Drlg. 4,205 ft.

Okfuskee County

Amerada No. 1 Conard, NE NW SW sec. 33-10-10. W.O.C. at 194 ft.

C. W. Titus No. 1 Lehmar, C NE NE sec. 26-11-8. Drlg. 3,075 ft.

Oklahoma County

Fain Drlg. No. 1 Little, SW SW NE sec. 28-11-3w. Drlg. 5,905 ft.

Olson Oil No. 1 L. Vaneck, SE SW NW sec. 4-12-3w. Drlg. 5,790 ft.

Okmulgee County

Manahan Oil Co. No. 1 Kennedy, NE NW NE sec. 31-14-11. T.D. 3,210 ft.; F.F.W.; D.&A.

Osage County

Chevalier-Simon No. 1 Osage, NW NW SW sec. 33-27-5. Drlg. Miss. L. 3,330 ft.

Norbia Oil Co. No. 1 Osage, SE cor. sec. 18-25-7. T.D. 2,784 ft.

Payne County

Sinclair-Prairie No. 1 McQuain, NE NW NE sec. 22-19-1. Drlg. 1,601 ft.

Pontotoc County

Caloma Oil Corp. No. 1 Brents, SE NE SW sec. 4-1n-6. T.D. 1,707 ft.; S.D.; lost circ.

Farmers Mutual Royalty Corp. No. 1 Waite, NE NE NW sec. 9-5-5. Wilco sd. 3,200 ft.; T.D. 3,234 ft.; P.B. to 2,880 ft.; swb. 250 B.O.; rng. tbg.

Jack Lynch et al No. 1-A Parker, SW SW SE sec. 17-4-8. T.D. 4,572 ft.; P.B. 4,490 ft.; rip in csg.; P.B. 4,090 ft.; to acd.

Union Dev. Co. No. 1-A Abbott, SW NW NE sec. 34-3-6. T.D. 2,013 ft.; cmtg. csg.

Pottawatomie County

Atlantic Ref. Co. No. 1-A McCurry, NW NE SW sec. 6-6-4. Drlg. 3,794 ft.

Pure Oil Co. No. 1 Lack et al, SE SW NW sec. 3-6-5. T.D. 4,270 ft.; P.B. 4,100 ft.; loaded with 145 B.O.; failed to pmp. load; D.&A.

Seminole County

Boetcher O. & G. No. 1 Morgan, SE NE NW sec. 8-5n-7. Drlg. 1,555 ft.

Burk-Greis No. 1 Blevins, SW NW SW sec. 28-10-7. Drlg. 420 ft.

Denver P. & P. No. 1 Mathis, SW NW SW sec. 7-6-8. T.D. 3,842 ft.; pmp. 37 B.O. and 3 B.W. in 24 hrs.; comp.

Farmers Mutual Royalty Corp. No. 1 Sch. Ld., SE SE NW sec. 16-5-5. T.D. 2,234 ft.; R.U.S.T.

Indian States et al No. 1 Johnson, NE SE NE sec. 2-6-5. T.D. 3,004 ft.; P.B. 2,850 ft.; shot and S.D.O.

Simpson-Roodhouse No. 1-A Fleet, NW NW NW sec. 27-7-5. Drlg. 1,890 ft.

Southern Oil Co. No. 1 Rainey, NW NE SE sec. 12-7-5. Drlg. 3,360 ft.

Washita County

L. B. McWhirter No. 1 fee, NW SW SW sec. 34-8-19w. T.D. 2,150 ft.; S.D.

SOUTHERN OKLAHOMA

Atoka County

C. M. Sheldon and Gardner Pet. Co. No. 1 Lee, NE NW SW sec. 2-4s-10e. Arb. 2,843 ft.; drlg. 3,410 ft.

Choctaw County

Clyde Ross et al No. 1 Hardy, SE SE NW sec. 21-7s-15. Drlg. 1,025 ft.

Jefferson County

Bridwell Oil Co. No. 1 Seay, SE SW NW sec. 29-6s-5w. T.D. 2,206 ft.; S.D.; rep.

Love County

Sinclair Prairie Oil Co. No. 1 Peabody, NE cor. sec. 35-6s-2w. T.D. 5,961 ft.; P.B. 5,585 ft.; cmtg.

KANSAS

Week Ending July 23 (Descriptions are East unless marked otherwise)

Barton County

Crown Pet. Corp. No. 1 Wolf, SE SW SE sec. 36-19-12w. T.D. 3,249 ft.; acd. and pmp. 6 B.O.P.D.; to D.D.

Gardner & Murfin No. 1 Krug, SW SE sec. 16-16-13w. U.R. at 2,590 ft.

Butler County

Heilman & Harwood No. 1 Sawyer, SE NE NE sec. 10-28-7. Top pay 2,740 ft.; pmp. 10 B.O.P.H.
National Ref. No. 1 Wentz, SE NE NW sec. 7-27-6. Drlg. 2,335 ft.
Rex & Morris No. 1 Newby, SW SE sec. 16-26-7. C.O. at 2,774 ft.
Simpson Oil No. 1 Equitable Life Ins., SW sec. 15-25-3. Drlg. 1,600 ft.
Max Steinbuchel et al No. 1 Fox, NW SE NE sec. 25-26-3. Miss. L. 2,732 ft.; Arb. 3,045 ft.; drlg. 3,065 ft.

Ellis County

Carter Oil No. 1 Sottschalk, NW SE sec. 36-15-18w. Cg. at 2,413 ft.
C. B. Davis No. 1 Smith, SW NW NE sec. 11-12-16w. Drlg. 2,305 ft.

Ford County

Sinclair Prairie Oil Co. No. 1 Young CSL NE sec. 34-27-21w. Viola 5,350 ft.; dolomite at 5,512 ft.; Wilcox 5,617 ft.; Arb. 5,629 ft.; T.D. 5,930 ft.; P.B. 5,025 ft.; acd. and bailed out; now est. 4,000,000 ft. gas and 2 B.O. P.H.; no test.

Graham County

C. E. Schlemeyer No. 1 Belveal, C SE NW sec. 3-8-24w. Drlg. 3,741 ft.; S.S.O.

Greenwood County

Smalley & Stauffer No. 1 Samples, SE NW NE sec. 15-26-13. Miss. L. 1,520 ft.; T.D. 1,552 ft.; W.I.H.; D.&A.

Jackson County

Haverback et al No. 1 Marble Bank, C NE NE sec. 26-9-14. Rng. 6-in. csg. at 2,600 ft.

Kingman County

Bunte Bros. No. 1 Shepard, SE SE SE sec. 10-27-10w. Drlg. 3,085 ft.

Marion County

Johnson et al No. 1-A Miltz, SW SW SW sec. 24-17-4. T.D. 1,650 ft.; S.D.
Progressive Oil No. 1 Evans, SE SW SE sec. 33-22-3. Drlg. 1,705 ft.

Mead County

Cragin, Reeuscher & Turner No. 1 Adams, NW NW SE sec. 22-34-30w. Drlg. 200 ft.
Pacific Midwest Oil No. 1 Rexford, NE SE SW sec. 8-30-29w. T.D. 935 ft.; S.D.

Ness County

Jones & Lane No. 1 Page, SE NW sec. 36-18-26w. T.D. 3,270 ft.; S.D.
Mid-Continent Oil Co. No. 1 Collins, NW NW sec. 24-20-26w. S.S.O. at 4,290 ft.; cg. 4,364-82 ft.; no shows.

Ottawa County

Babcock Oil No. 1 Copeman, NW NW sec. 18-10-2w. Drlg. 1,195 ft.

Reno County

L. E. Douglas et al No. 1 Durand SE SE SW sec. 3-23-5w. S.D. 3,600 ft.

Rice County

C. L. Carlock No. 1 Heinz, NW SE sec. 8-18-10w. Drld. plug to 3,019 ft.; 1,000 ft. O.I.H.; swbd. 50 B.O. in 24 hrs.; grav. 42.8.
Marylyn Oil Co. et al No. 1 Vincent, NW NE sec. 5-21-10w. Drlg. 3,357 ft.
Shell Pet. et al No. 1 Cramm, CNL NE sec. 15-19-9w. Arb. 3,240 ft.; Dol. 3,246 ft.; T.D. 3,251 ft.; swbd. 200 B.O. in 5 hrs.; 1,750 ft. off bttm.

Riley County

Coronado Oil et al No. 1 Parks, SE SE sec. 16-10-8. Drlg. 1,730 ft.

Rooks County

Fred Haines et al No. 1 Don, SE SE SW sec. 13-9s-16w. U.R. at 2,765 ft.
J. J. Hall No. 1 Kruse, SE NE sec. 3-10-16w. T.D. 3,124 ft.; P.B. 3,100 ft.; 2,500 ft. O.I.H.; acd.
Power-Olson Oil Co. No. 1 Hammond, C SW sec. 34-6-19w. Drlg. 1,060 ft.
Producers Oil No. 1 Ham, SW NW sec. 25-7-19w. Drlg. 1,545 ft.

Rush County

Phillips Pet. Co. No. 1 John Kees, C SE SE sec. 3-19-20w. T.D. 2,500 ft.; S.D. for csg.

Russell County

Aylward Prod. Co. No. 1 Salbach, SE NE sec. 31-14-14w. Arb. 3,143 ft.; pay 3,149 ft.; T.D. 3,154 ft.; swb. 20 B.O. P.H. for 10 hrs.; 500 ft. off bttm.
Coralena No. 1 Hefferman, NE SE SW sec. 34-14-13w. P.B. 2,900 ft.; cmtg. T.D. 3,020 ft.
J. J. Hall No. 1 Landon, SW SE sec. 11-15-14w. T.D. 3,100 ft.; 1,800 ft. O.I.H.. W.O.C.
Geo. Hinkle No. 1 Kaufman, SE NW sec. 10-15-12w. Drlg. 340 ft.
Phillips Pet. Co. No. 1 Miller, C NW SW sec. 29-13-14w. K.C. L. 3,044 ft.; Arb. 3,310 ft.; T.D. 3,311 ft.; pmp. 73 B.O. in 3 hrs.; 30 grav.
R. H. Shields No. 1 Anschutz, SW SE sec. 2-14-13w. Drlg. 3,362 ft.
R. H. Shields No. 1 Rogg, CEL W½ NW sec. 9-15-13w. S.O.&G.; est. 75 B.O.P. D.; C.O. at 2,987 ft.
Smith & Unruh No. 1 Stielow, NW cor sec. 32-11-14w. Drlg. 2,769 ft.
W. I. Southern No. 1 Letsch, NE SW SW sec. 17-15-13w. T.D. 3,230 ft.; 1,000 ft. O.I.H. in 10 hrs.; R.U.S.T.

Sedgwick County

Frank Hudson et al No. 1 Fulton, NE SE sec. 35-28-1e. T.D. 2,283 ft.; C.O.
Natl. Ref. No. 1 Trustee, SE NE sec. 8-27-2. W.O.C. at 3,252 ft.
Union O. & R. Co. et al No. 1 Howell, SW cor. sec. 6-29-1e. S.D. 3,550 ft.

Stafford County

Atlantic Ref. Co. No. 1 Wise, NW cor. sec. 13-24-14w. Drlg. 3,440 ft.
Cities Service No. 1 Smith, CWL SW sec. 16-21-11w. Drlg. 3,220 ft.
Western Kans. O. & R. No. 1 Barnes, NW NW sec. 8-21-12w. Arb. 3,644-94 ft., T.D.; no shows; D.&A.

Sumner County

Murphy et al No. 1 Tate, SE NW sec. 31-32-2e. T.D. 3,747 ft.; Arb.; 2,040 ft. pay 3,733-36 ft.; T.D. 3,747 ft.; pmpg. 2½ B.O.P.H.

Woodson County

Cyr Gas et al No. 1 Schrieber, SE SW SE sec. 8-25-14. S.D. 1,553 ft.
Phil-Han Oil No. 1 Evans, NW SE sec. 21-23-15. T.D. 1,545 ft.; pmp. 20 B.O. and 20 B.W.P.D.; 40 grav.; comp.
M. J. Trott No. 1 O'Neal, SE SE sec. 21-25-14. H.F.W.; T.D. 1,540 ft.; D.&A.

ARKANSAS

Calhoun County

C. E. Murdock No. 1 Southern Kraft Corp., SE cor. NW NW sec. 17-14-13. T.D. 10 ft.; drlg. wtr. well.

Cleveland County

W. E. Allaum, Tr., No. 1 Moore Est., SW cor. SE NW sec. 34-9-10. Set 10¾-in. 170 ft.; T.D. 180 ft.; W.O.C.

Columbia County

Atlantic Ref. Co. No. 1 Harrington, C SW NW sec. 14-17-20. R.U.
Fohs Oil Co. No. 1 Phillips, C NW SW sec. 15-17-19. S.G. 3,330-50 ft.; cg. anhy. 7,343 ft.
Pet. Finance Co. No. 1 Baker, C SW NW sec. 13-17-20. R.U.
Standard Oil Co. of La. No. 1 T. Crumpler, sec. 15-17-19. Top James L. 3,657 ft.; drlg. sh.&sd. 6,389 ft.
Standard Oil Co. of La. No. 3 McKean, NE SE sec. 7-16-22. Drlg. L. 5,783 ft.
G. H. Vaughn No. 1 Garrett, C NE SE sec. 14-17-20. R.U.
O. F. Whittaker No. 1 C. C. Hall, 70 ft. W line, 52 ft. S line, NW NW sec. 11-15-20. Set 6-in. csg. 2,116 ft.; W.O. pmp.; 50 ft. F.I.H. 2,176 ft.

Craighead County

Tannark, Inc., No. 1 Ruby M. Martin, 580 ft. N line, 80 ft. E line, sec. 35-14n-3e. Cg. 1,734 ft.

Lafayette County

Standard Oil Co. of La. No. 1 J. L. Warren, 1,980 ft. E line, 610 ft. N line, sec. 18-16-22. Top anhy. 3,279 ft.; drlg. sh. 7,000 ft.

Little River County

M. E. Sanderson No. 1 Pinny; O.W.W.O.; reported abd. 1,300 ft.; NE cor. NE SW sec. 6-13-30. S.D. 1,324 ft.
Joe G. Straham et al No. 2 Dierks Lbr. Co. Top L. 2,425 ft.; S.D.; W.O. 3,030 ft.

Lonoke County

J. F. Russell No. 1 Gunter, sec. 17-5n-10w. Drlg. 820 ft.

Miller County—Rodessa

F. W. Burford No. 1 H. C. Mitchell, NW cor. NW NE sec. 11-20-28. Drlg. 1,300 ft.
Gerhig Co. No. 1 H. C. Mitchell, SE SW sec. 2-20-28. Drlg. sh.&L. 5,500 ft.
Hill & Eastabrook No. 1 Sherman, SW NW sec. 29-19-28. Drlg. sh. 4,009 ft.
Red River Valley Oil Co. No. 1 Beck, sec. 34-15-26. Set 10¾-in. csg. 128 ft.; S.D. fuel 1,450 ft.

Nevada County

B. L. Webb No. 1 Boswell, sec. 5-14-20. Set 10-in. csg. 63 ft.
Bruce E. Wallace No. 2 Haynie, SE cor. SE NE sec. 5-14-21. Sdy. sh. 1,194-1,204 ft.; tstd. mud, S.W. and oil 1,198-1,214 ft.; 30 min.; W.O.; T.D. 1,214 ft. set 6-in. csg. 1,198 ft.; swbd. est. 10 bbls. oil; W.O.S.R. 1,214 ft.

Pulaski County

Coker Oil Corp. No. 1 Stone, sec. 36-3n-11w. S.D. 905 ft.
A. L. Kitselman No. 2 A. L. Kitselman, Jr., SE SE SW sec. 2-1s-13e. T.D. 2,900 ft.; lost circ.; P.B. surf.; drlg. hd blue slate 2,940 ft.

Union County—Schuler

R. T. Adams No. 1 F. W. Powledge, sec. 7-18-17. Top Jones sd. 7,616 ft.; 7-in. csg. 7,720 ft.; T.D. 7,720 ft.
Alice Sydney Oil Co. No. 4 Powledge, SW cor. NW SE sec. 7-18-17. Top Jones sd. 7,593 ft.; T.D. 7,670 ft.; set 7-in. csg. 7,670 ft.; perf. 7,593-7,614 ft.; comp.; 60 B.P.H.; ¾-in. ck.; T.P. 350 lbs.; C.P. 525 lbs.
Atlantic Ref. Co. No. 1 Rogers, sec. 16-18-17. Drlg. sdy. sh. 3,837 ft.
E. M. Jones No. 1 C. H. Murphy, NW cor. Lot 6, NW sec. 19-18-17. O.W.D. D.; R.U.
E. M. Jones No. 3-A Murphy Ld. Co. NE cor. SE NE sec. 19-18-17. Top Jones sd. 7,532 ft.; cd. to 7,589 ft.; 7-in. csg. set 7,590 ft.; comp.; 1,920 B. P.D.; ½-in. ck.; T.P. 350 lbs.; C.P. 60 lbs.; T.D. 7,590 ft.
E. M. Jones No. 2 Rogers, SW SW sec. 16-18-17. Drlg. rd.&gr. sh. 5,750 ft.
Lion Oil Ref. Co. No. 1 Dee, sec. 17-18-17. Drlg. rd. sdy. sh. 7,034 ft.
Lion Oil Ref. Co. No. 2 Marcus, 330 ft. SE cor. Lot 3, SE sec. 18-18-17. Drlg. rd. sdy. sh. 6,673 ft.
Lion Oil Ref. Co. No. 3 Marcus, SW cor. Lot 5, NW sec. 18-18-17. Drlg. rd.&gr. sh. 5,896 ft.
Lion Oil Ref. Co. No. 4 Marcus, NW cor. Lot 3, SW sec. 18-18-17. Set 16-in. csg. 107 ft.; T.D. 120 ft.
Lion Oil Ref. Co. No. 5 Mayfield, sec. 18-18-17. Top Jones sd. 7,547 ft.; top L. 7,650 ft.; set 7-in. csg. 7,718 ft.; T. D. 7,725 ft.
Lion Oil Ref. Co. No. 1 Natl., NW cor. NE SW sec. 17-18-17. R.U.
Lion Oil Ref. Co. No. 2 Nelson, Lot 5, sec. 18-18-17. Straightening hole 1,925 ft.
Marine Oil Co. No. 1 Calloway, SE cor Lot 4, NW sec. 18-18-17. Top Jones sd. 7,537 ft.; top L. 7,638 ft.; fsg. 7,700 ft.
Phillips Pet. Co. No. 3 Marks, C Lot 2 Top Jones sd. 7,504 ft.; top L. 7,608 ft.; set 7-in. csg. 7,784 ft.; T.D. 7,806 ft. perf. csg. 7,648-55 ft.; flwd. 181 B.P. H.; ⅛-in. ck.; T.P. 1,200 lbs.; C.P. 2,450 lbs.; at gas-oil ratio 700/1; killed; set cmt. retainer 7,640 ft. and recmtd.; perf. 7,650-55 ft. and 7,661-63 ft.; flwg. 296 bbls.; 24/64-in. ck. in 18¼ hrs.; tstd. 78% S.W.; drlg. out plug to recmt. and S.O. S.W.; attempting sqze. 7,806 ft.
Phillips Pet. Co. No. 4 Marks, sec. 18-18-17. Cg. 7,547 ft.
Phillips Pet. Co. No. 1 Miller, NE cor., Lot 4, SW sec. 18-18-17. Drlg. rd.&gr. sh. 4,246 ft.
Phillips Pet. Co. No. 1 Sewell, SW cor., Lot 5, SW sec. 7-18-17. Drlg. rd.&gr. sh. 4,410 ft.
Roberts & Murphy No. 1 Justiss, 330 ft. SE cor. Lot 6, SW sec. 7-18-17. Set 10¾-in. csg. 1,771 ft.; top Jones sd. 7,561 ft.; top L. 7,662 ft.; set 7-in. csg. 7,740 ft.; drlg. 7,775 ft.

Union County—Other

J. R. Lockhart No. 1 Raulston, sec. 12-17-14. Cd. oil sd. 3,160-75 ft.; D.S.T. 3,172-75 ft.; rec. drlg. fluid and S.W.; cd. 3,175-85 ft.; S.O.; salty taste; set 7-in. csg. 3,077 ft.; perf. 3,002-07 ft.; tstd. 2,750 ft. S.W.; reperf. 2,967-73 ft.; blew wild; est. 500 bbls. S.W.; P.B. 2,700 ft.; fsg. for 2,100 ft. D.S.
Joe Modisette et al No. 2 Union Sawmill Co., sec. 8-18-12. T.D. 3,354 ft.; S.W. sd. 3,554-67 ft.; ran Schlumberger and set 9⅝-in. csg. 3,009 ft.; drlg. rd. sh. 3,885 ft.
Phillips Pet. Co. No. 5 Bilyew, 460 ft. N line, 660 ft. W line, sec. 9-16-15. O.W. W.O.; former Shell dry gasser; comp.; blowing 31,000,000 ft. daily; old T.D. 2,294 ft.; cd. top Meakin 2,347 ft.; T.D. 2,348 ft.; 250 ft. F.I.H.; W.O.S.R.
W. D. Wingfield, Tr. No. 2 Kidd Est., SE cor. NW SW sec. 15-18-13. Sd. S.D. 2,257-2,300 ft.; set 6-in. csg. 2,250 ft.; T.D. 2,300 ft.; W.O.S.R.

LOUISIANA

N. LOUISIANA WILDCATS

Bienville County

DeSoto O. & G. Co. No. 1 Fleming, C NW NW sec. 18-16-9. Drlg. sh. 2,370 ft.

Bossier Parish

C. H. French No. 1 Weaver, sec. 14-19-11. Set 6⅝-in. csg. 377 ft.
Premier Inv. Co. No. 1 Community Corp., sec. 22-19-11. S.D. 310 ft.
Premier Inv. Co. No. 1 McDade, SE SW NE sec. 28-19-11. Tstd. est. 1,000,000 ft. gas; S.I.; T.D. 2,374 ft.; top oolitic L. 2,345 ft.; set 5½-in. csg. 2,300 ft without cmt.; set 7-in. csg. 2,026 ft. without cmt.; tstd. est. 1,000,000 ft gas, S.S.O.; S.I.; W.O.
Sloan, Lloyd et al No. 1 Sherrill, sec. 12-19-12. T.D. 780 ft.; set 5½-n. 778 ft.; trtd. with 1,000 gal. acd.; tstd. dry; W.O.

Caddo Parish

R. E. Allison No. 1 Ellerbee et al., NW cor. sec. 27-18-14. Set 7-in. csg. 5,943 ft.; T.D. 6,025 ft.; perf. csg. 5,848-59 ft. and tstd. S.W.; P.B. 5,845 ft. and perf. 5,548-70 ft.; comp.; 499 B.P.D.; ¼-in. ck.; T.P. 850 lbs.; C.P. 1,190 lbs.
J. W. Bailey No. 2 Caddo Lvy. Bd., SE cor. sec. 36-21-16. R.U.
J. E. Carroll et al No. 1 Stiles, SW cor. NE sec. 17-21-16. Set 7-in. csg. 1,017 ft.
W. D. Chew No. 3 Stiles, sec. 33-21-16. Set 6-in. csg. 1,852 ft.; tstg. 1,985 ft.
J. P. Driscoll et al No. 4 Pender, sec. 11-20-15. R.U.
Falcon Oil Co. No. 2 Glassell-Youree, SE cor. sec. 26-20-15. Cg. 2,235 ft.
C. G. Gibbons No. 1-A State Lv. Bd., sec. 17-21-16. Set 8-in. csg. 1,015 ft.; tstg. 1,029 ft.
J. H. Gray No. 4 Stiles, sec. 33-21-16. Tstd. S.W. 961 ft.; W.O.
A. R. Hancock No. 5 Helpman, sec. 16-21-16. Comp.; pmp. 20 B.P.H.; T.D. 1,013 ft.
W. K. Hutchinson hrs. No. 1 fee, sec. 3-15-12. Set 6-in. csg. 1,908 ft.
E. W. McGoldrick No. 8 Muslow, sec. 32-21-15. Set 6⅝-in. csg. 1,351 ft.; T.D. 1,525 ft.; comp.; pmp. 15 B.P.D.
Magnolia Pet. Co. No. 27 Dillon Hrs., SW cor. NW sec. 24-21-15. R.U.
Midfield Oil Co. No. 3 Muslow, sec. 6-20-15. Tstg. 1,560 ft.
Midfield Oil Co. No. 4 Muslow, C NE SW sec. 6-20-15. Comp.; 50 B.P.D., flwg.; T.D. 1,560 ft.
J. F. Mitchell No. 2 Muslow, sec. 31-21-15. Set 6-in. csg.; W.O.S.R. 1,649 ft.
Oils, Inc., No. 1 Cazaux, sec. 10-16-13. Drlg. ch. rk. 1,420 ft.
Petroleum Heat & Power Co. No. 1 Wemple, NW cor. sec. 14-20-15. Set 6-in. csg. 2,185 ft.; P.B. 2,200 ft.; old T.D. 2,605 ft.; fsg. for lnr. 2,200 ft.; tstd. S.W.; W.O.
J. E. Sedberry No. 1-A Dickinson, SW cor. sec. 10-19-14. Set 8-in. csg. 300 ft.
T. D. Sedberry No. 2 Stiles, sec. 28-21-16. Set 5½-in. csg. 1,038 ft.; tstg. 1,040 ft.
G. H. Vaughn No. 2 Stiles, sec. 21-21-16. Set 6-in. 1,010 ft.; S.W. and abd. 1,013 ft.
Nat Wissman No. 3 Stiles, NW cor. SE SW sec. 27-21-16. Drlg. 300 ft.

Caldwell Parish

G. W. Ziegen No. 14 La. Central, SW cor. sec. 20-14-3e. Drlg. sh. 1,766 ft.

Claiborne Parish

Atlantic Ref. Co. No. 1 Enloe, C SE NW sec. 28-21-4. D.S.T. 5,168-85 ft.; rec. mud; T.D. 5,200 ft.; D.&A.
Harry Fotiades No. 1 Rogers, C NW NW sec. 13-20-5. Drlg. sh.&L. 5,225 ft.
Harry Fotiades No. 2 Whitman, C NW NW sec. 2-20-5. Drlg. L. 4,225 ft.
Gulf Oil Corp. No. 2 Patton, sec. 12-20-5. Drlg. sh. 2,840 ft.
J. H. Henry et al No. 1 Tippett, sec. 33-21-4. Sat. L. 5,253-58 ft.; set 5½-in. csg. 5,250 ft.; swbg. small S.O.; T.D. 5,274 ft.
Love Pet. Co. No. 2 English, sec. 29-21-4. Drlg. sh.&L. 3,967 ft.
Lyons & Neely No. 1 Kilgore, C NW SE sec. 11-20-5. R.U.
W. H. North No. 1 Lowery, C NE NW sec. 14-20-5. R.U.
Oakes et al No. 1 Kilgore, NE cor. SE sec. 28-21-15. D.S.T. 4,188-4,225 ft.; tstd. dry in 5 min.; set 5¾-in. csg. 5,290 ft.; T.D. 5,313 ft.; set perf. lnr.; tstd. dry; washed with oil and acdz. with 2,000 gal. and 150 bbls. oil; swb. dry; think csg. seat gave away; recmt. csg.; cor. depth 5,270 ft.; cor. T.D. 5,357 ft.; tried to reacdz.; swbg. small S.O.
A. O. Olson No. 1 Kennedy, sec. 26-21-5. Sat. L. 5,194-97 ft.; set 5½-in. csg. 5,194 ft.; T.D. 5,205 ft.; acd. with 400 gal.; swbg. to test.
Prairie O. & G. Co. No. 1 Lloyd, sec. 10-20-5. Sat. L. 5,301-13 ft.; set 5½-in. csg. 5,298 ft.; T.D. 5,318 ft.; comp.; 52 B.P.H.; 36/64-in. ck.; C.P. 200 lbs.; T. P. 150 lbs.
Prairie O. & G. Co. No. 2 Lloyd, C SE NE sec. 10-20-5. Set 10¾-in. csg. 720 ft.
Sells Pet. Co. No. 1-B C. S. L. Patton, SE cor. NW sec. 12-20-5. Drlg. 700 ft.
Sklar Oil Corp. No. 3 Kilgore, C SW SW sec. 11-20-5. T.D. 5,290 ft.; set 5½-in. csg. 5,257 ft.
Sklar Oil Corp. No. 4 Kilgore, C SE SW sec. 11-20-5. Sat. L. 5,306-11 ft. and 5,320-27 ft.; set 5½-in. csg. 5,305 ft.; tstg. 5,332 ft.; comp.; 45 B.P.H.; open tbg.; acd. with 5,000 gal.
Sloan & Zook No. 8 Patton, C SE SW sec. 1-20-5. Rng. csg. 5,404 ft.
Texas Canadian Oil Co. No. 1 Patton, C SW SW sec. 12-20-5. R.U.
Union Prod. Co. No. 1-A Simms Unit 660 ft. SW cor. sec. 29-20-5. Cg. rd. bds. 5,678 ft.

Concordia Parish

Edw. Addy et al No. 1 Posternack, NW SW sec. 49-8n-9e. Drlg. 610 ft.
Morrison & Co. No. 1 Winston, sec. 43-7-9e. S.D. 3,950 ft.

De Soto Parish

S. S. Alexander No. 1 Stoll, NE cor. sec. 5-12-16. O.W.W.O.; old T.D. 6,002 ft.; set short string 5½-in. csg. 5,479 ft. reperf. 5,420-40 ft.; tstg. S.W. 5,440 ft. cmtd. all perf. above 5,180 ft.; drld out cmt. and perf. 5,420-44 ft.; set 2-in. tbg. with pkr. 5,360 ft.; T.D. 5,453 ft.; used 5,000 gal. acd. and tstd. S.W. perf. 5,080-5,132 ft.; set pkr. 5,117 ft.; swbd. S.W.; S.O.; P.B. 4,110 ft.; T.D. 4,145 ft.; perf. 4,123-43 ft.; tstd. dry; D.&A.; old T.D. 6,002 ft.; T.D. 4,145 ft.
G. H. Collins et al No. 2 Joiner, sec. 28-11-12. Set csg. 2,925 ft.
Petroleum Heat & Power Co. No. 2 Kavanaugh, NE cor. NW SW sec. 7-11-11. Tstd. dry 2,874 ft.; W.O.

Pet. Heat & Power Co. No. 1 Rives, sec. 20-12-11. S.D. 3,620 ft.
Rodessa O. & R. Co. No. 1 Boone, 330 ft. S and W, C sec. 25-11-11. Drlg. sh. 2,670 ft.

Grant Parish

C. R. Bowers No. 1 Harrison Est., sec. 21-8-5. S.D. 1,091 ft.
C. L. Thompson No. 1 McNeely Est., NE cor. sec. 10-6-3w. Ran Schlumberger; T.D sh. 4,518 ft.; S.D.

La Salle Parish

Cherie Oil Co. No. 1 Urania, NW cor. NW SW sec. 18-10-2e. R.U.
Graham & Harter No. 3 Urania, 150 ft. NW cor. SW NW sec. 18-10-2e. Comp.: pmp. 20 B.P.D.; T.D. 1,523 ft.; 6-in. csg. 1,515 ft.

Lincoln Parish

Harry Fotiades No. 2-B Patton, C NW SW sec. 7-20-4. T.D. 2,534 ft.; S.D. for wtr.
Magnolia Pet. Co. No. 1 Fuller, C SE SW sec. 5-20-4. Drlg. L. 4,952 ft.
Magnolia Pet. Co. No. 3 Patton hrs., C NW NW sec. 7-20-4. Set 7-in. csg. 5,-310 ft.; T.D. 5,311 ft.

Madison Parish

Continental Oil Co. No. 1 Singer Mfg Co., C NE NW sec. 3-15-11e. T.D. 1,-740 ft.; P.B. 764 ft. to straighten hole.

Natchitoches Parish

Jos. E. Popkins No. 1 Peavy Lbr. Co., sec. 36-7n-9w. S.D. 500 ft.; 10-in. csg. 300 ft.

Red River Parish

Monte Oil Co. No. 1 McClelland, NW NW sec. 24-13-11. D.S.T. 967-74 ft. S.G.; D.S.T. 1,570-98 ft.; small S.G.; set 6-in. csg. 2,490 ft.; R.U. cable tool; sd 2,530 ft.; comp. pmp. 5 B.P.D.; T.D. 2,-556 ft.
H. D. Rogers No. 3 Long Bell Lbr. Co., sec. 30-13-9. Drlg. sh. 1,013 ft.

Sabine Parish

Addison & Peterson No. 1 Dew, SE cor. SW SE sec. 22-8-11. R.U.
Hare et al No. 1 Stoby, SW cor. SE sec. 10-8-12. R.U. and S.D.
Hunter Co. No. 5 Bowman Hicks, C SE SE sec. 12-7-13. Set 6-in. csg. 2,222 ft.; pmpg. 60 B.P.D.; W.O.
F. B. King No. 1 Sabine Lbr. Co., sec. 19-7-13. S.G. 3,595-3,617 ft.; D.S.T. 3,-563-3,628 ft.; tstd. S.G. and S.W.; D.& A. 4,517 ft.
W. L. McClanahan No. 1 Frost Lbr. Co., sec. 22-9-13. D.S.T. 2,927-3,028 ft.; tstd. est. 1,000,000 ft. gas and 9 jts. mud; ¼-in. ck.; blew out 4,745 ft.; S.W., mud and gas; cd. hd. sh.&L. 4,745-54 ft.; drlg. sh.&anhy. 5,299 ft.
Major Oil Co. No. 3 Bowman-Hicks, sec. 11-7-13. Set 7-in. csg. 2,130 ft.
Harry N. Morris No. 1-B Irving & Bishop, C SW NW sec. 18-7-12. Drlg. ch. rk. 2,630 ft.
Plymouth Oil Corp. No. 1 Kezerle, sec. 3-7-13. Tstd. S.W. 2,494 ft.; S.W. and abd.
Albert Reich No. 1 Glaque, 330 ft. NE cor. SE NE sec. 27-7-14. S.D. 4,017 ft.; rep. rig.
Richard & Holloway No. 1 Sabine Lbr. Co., sec. 7-7-12. Set 6-in. csg. 2,148 ft.
Sklar & Sugar No. 1 Procella, NW NE sec. 18-7-12. Set 7-in. csg. 2,478 ft.: tstg. small S.G. 2,908 ft.; P.B. 2,670 ft.; tstd. small S.O.&G.; tstd. S.W.; old T.D. 2,908 ft.; T.D. 2,670 ft.; will acd.
Smiddy & Watson No. 1 Sabine Lbr. Co., NW NE sec. 12-7-13. Set 10-in. csg. 60 ft.; 7-in. csg. 2,129 ft.; tstd. dry 2,352 ft.; tstg. 2,580 ft.
H. M. Sneed No. 1 Leone, 330 ft. S line, 400 ft. W line, NW SE sec. 8-7-13. R.U.
Sutton Zwolle Oil Co. No. 1 Bowman-Hicks, SE SW sec. 14-7-14. Drlg. sh. 1,320 ft.
Tropical Oil Co. No. 1 Long Bell Lbr. Co., sec. 5-8-13. Set 12-in. 93 ft.
Voline Oil Co. No. 1 First Natl. Bnk., sec. 18-7-12. Set 10-in. csg. 48 ft.
Lee Whitehurst No. 1 First Natl. Bnk. of Shreveport, sec. 14-7-13. Set 10-in. 82 ft.; drlg. 2,030 ft.
Zwolle Synd. No. 1 Mansfield Lbr. Co., sec. 8-7-19. Stk. D.S. 565 ft.

Union Parish

Standard Oil Co. of La. No. 1 Frost Lbr., sec. 14-21-1e. Cd. 9,805-21 ft.; light gr. sd.; slight porosity in spots, salty taste; T.D. 9,983 ft., hd. L.; run Schlumberger; D.&A.

Webster Parish

S. W. L. Backus No. 4 Pardee, sec. 3-22-11. D.S.T. 2,725-34 ft.; rec. 4 jts. oil and mud; T.D. 2,734 ft.; set 7-in. csg. 2,729 ft.; W.O.S.R.; O.I.H.
Hunt Oil Co. No. 8 Babb, sec. 13-21-10. Top Holloway sd. 5,642 ft.; set 9⅝-in. csg. 5,627 ft.; T.D. 5,980 ft.; Holloway sd. tstd. dry; drlg. L.&sh. 6,610 ft.
Hunt Oil Co. No. 1 Bodcaw, C SW NE sec. 33-21-10. Holloway 5,742-72 ft.; set 9⅝-in. csg. 5,820 ft.; perf. csg. 5,740-70 ft.; comp.: 17 B.P.H.; ¾-in. ck.; T. P. 375 lbs.; C.P. 850 lbs.; T.D. 5,953 ft.
Hunt Oil Co. No. 2 Bodcaw Lbr. Co., NE cor. sec. 33-21-10. R.U.
Hunt Oil Co. No. 2 Bodcaw-Stewart, C NE SE sec. 33-21-10. Holloway sd. 5,-832-48 ft.; set 9⅝-in. csg. 5,945 ft.; tstg. 5,940 ft.
Hunt Oil Co. No. 1 Davis, 660 ft. NE cor. sec. 23-21-10. Holloway sd. 5,394-5,600 ft.; set 9⅝-in. csg. 5,563 ft.; tstg. 5,969 ft.
Hunt Oil Co. No. 20 Hope, C NE NW sec. 24-21-10. Top Holloway sd. 5,596-5,604 ft.; set 9⅝-in. csg. 5,580 ft.; did not test Holloway sd.; drlg. sh.&L. 6,-603 ft.
Hunt Oil Co. No. 1 Pardee, sec. 24-21-10. Set 13⅜-in. csg. 797 ft.; drlg. 2,980 ft.
Hunt Oil Co. No. 4 Webb, sec. 13-20-10. Holloway sd. 5,730-46 ft.; set 9⅝-in. csg. 5,923 ft.; T.D. 5,942 ft.; comp.: 28 B.P.H.; ⅞-in. ck.; T.P. 300 lbs.; C.P. 910 lbs.; perf. 5,730-46 ft.
Magnolia Pet. Co. No. 4 Cox, sec. 23-21-10. Drlg. sh.&L. 5,030 ft.
Magnolia Pet. Co. No. 1 Crichton Unit sec. 33-21-10. Top Lower Marine 7,910 ft.; drlg. sh.&L. 8,265 ft.
Magnolia Pet. Co. No. 1-C Pardee, C NW NE sec. 17-23-11. Drlg. sh.&L. 4,530 ft.
Magnolia Pet. Co. No. 1 Robbins Unit, sec. 21-21-10. Comp.; 560 B.P.D.; ⅞-in. ck.; T.P. 2,500 lbs.; C.P. 2,400 lbs.; top Bodcaw sd. 8,484 ft.; T.D. 8,512 ft.; 7-in. csg. 8,486 ft.
Harry Morgan No. 2 Hope, C SE SW sec. 24-21-10. Drlg. sh. 5,460 ft.
North American Oil Consol. Co. No. 1 Barrow, C NE NW sec. 21-21-10. Top Trv. Pk. 5,889 ft.; set 9⅝-in. 5,945 ft.; no Holloway sd.; drlg. sh. 6,460 ft.
Ohio Oil Co. No. 4 Bodcaw, Acct. 4, sec. 13-21-10. Holloway sd. 5,794-5,810 ft.; set 9⅝-in. csg. 5,787 ft.; T.D. 5,830 ft.
Ohio Oil Co. No. 4 Cox, Acct. 2, C SW sec. 15-21-10. Drlg. sdy. sh. 7,679 ft.
Ohio Oil Co. and Union Prod. Co. No. 1 Tillman-Gleason, sec. 28-21-10. Bodcaw sd. 8,313-65 ft.; set 7-in. csg. 8,322 ft.; T.D. 8,366 ft.
Oliphant Oil Corp. No. 1-B Stewart, C NW NE sec. 5-20-10. R.U.
Union Prod. Co. No. 1 Josey, sec. 27-21-10. Set 7-in. csg. 8,084 ft.; T.D. 8,145 ft.

SOUTH LOUISIANA FIELDS

Abbeville—Vermilion Parish

Continental Oil Co. No. 2 J. A. Brookshire, sec. 66-12s-3e. Drlg. sh. 4,225 ft.
Continental Oil Co. No. 1 Franciol, sec. 67-12s-3e. Spd.
Continental Oil Co. No. 1 Motty, sec. 65-12s-3e. T.D. 8,242 ft.; P.B. 6,426 ft.; perf. csg. 6,422-25 ft.; would not flow; fsg. out screen.

Anse La Butte—St. Martin Parish

Butte Oil Co. No. 2 Billeaud, sec. 117-9s-5e. No report.
Louisiana-Crusader No. 3 Central Oil Co., sec. 86-9s-5e. S.D. 421 ft.
Mary G. Thomas No. 1 J. A. Broussard, sec. 117-9s-5e. S.D. 1,005 ft.

Bancroft—Beauregard Parish

Republic Prod. Co. No. 1 Columbia Ld. & Tmbr. Co., sec. 16-6s-13w. Drlg. sh. 1,240 ft.

Bateman Lake—St. Mary Parish

Texas Co. No. 1 Wax Bayou, sec. 21-16s-12e. Drlg. hd. L. 6,335 ft.

Baton Rouge—East Baton Rouge Parish

Wm. Helis No. 2 Dunlantier, sec. 65-7s-1w. T.D. 7,340 ft.; P.B. 3,800 ft.; sidetracked; drlg. 5,992 ft.
Wm. Helis No. 1 Harry Nelson, sec. 36-7s-1w. Cd. oil sd. 6,477-6,500 ft.; T.D. 7,710 ft.; D.S. stk.

Bay St. Elaine—Terrebonne Parish

F. L. LeBlanc No. 2 Wurzlow, sec. 17-22s-18e. S.D. 816 ft.

Bayou Blue—Iberville Parish

Humble O. & R. Co. No. 7 A. Wilberts, sec. 66-9s-11e. 16-in. csg. 208 ft.; drlg. sh. 3,200 ft.

Bayou Choctaw—West Baton Rouge

La. Crusader Oil Co. No. 3 Schwing, sec. 29-8s-11e. Drlg. 950 ft.
Standard Oil Co. et al No. 1 Marley Cypress Co., sec. 29-8s-11e. T.D. 2,265 ft.; run 9⅝-in. csg.

Bayou De Allemands—St. Charles Parish

Amerada Pet. Corp. No. 1 Gheens Realty Co., sec. 56-15s-20e. T.D. 7,010 ft.; T.D. of sdtrkd. hole 5,421 ft.; sdtrkd.; drlg. sh. 6,925 ft.
Amerada Pet. Corp. No. 4 State, sec. 13-15s-20e. 13⅜-in. csg. 1,976 ft.; 9⅝-in. csg. 8,156 ft.; cg. 9,462 ft.
Amerada Pet. Corp. No. 2 St. Charles Ld. Co., sec. 13-15s-20e. 13⅜-in. csg. 2,123 ft.; drlg. sd.&sh. 7,805 ft.

Caillou Island—Terrebonne Parish

Texas Co. No. 29 State, sec. 17-23s-20e. Rig.

Cameron Meadows—Cameron

Burton-Sutton Oil Co. No. 23 School Ld., sec. 16-14s-13w. T.D. 5,786 ft.; 7-in. csg. 5,323 ft.; tstd. S.W.; P.B. to sidetrack; T.D. 2,959 ft.; flwd. oil and went dead; sanded up; S.D.
Burton-Sutton Oil Co. No. 24 School Ld., sec. 16-14s-13w. Drlg. sh. 5,516 ft.
Burton-Sutton Oil Co. No. 25 School Ld., sec. 16-14s-13w. No report.
Magnolia Pet. Co. No. 22 Cameron Meadows, sec. 21-14s-13w. 9⅝-in. csg. 4,242 ft.; T.D. 6,367 ft.; P.B. 3,830 ft.; perf. csg. 3,782-3,802 ft.; tstd. 1,000 ft. oil; tstg.

Chenoyville—Rapides Parish

Amerada Pet. Corp. No. 5 Well Ld. Co., sec. 53-1s-2e. T.D. 6,568 ft.; P.B. 6,501 ft.; 8⅝-in. csg. 6,496 ft.
Texas Co. No. 3 Well Ld. Co., sec. 53-1s-2e. No report.

Charenton—St. Mary Parish

Kinsley Oil Co. No. 1 Hertel, sec. 21-13s-9e. Loc.
Pan American Prod. Co. No. 9 Laws Realty Co., sec. 31-13s-10e. No report.
Pan American Prod. Co. No. 10 Laws Realty Co., sec. 30-13s-10e. Rig.

Creole—Cameron Parish

Superior Oil Co.-Pure Oil Co. No. 2 State, Gulf of Mexico. T.D. 6,813 ft.; P.B. 1,-200 ft.; drld. T.D. 5,159 ft. in oil sd.; top sd. 5,142 ft.; rmg. to set csg.

Darrow—Ascension Parish

Darrow Oil Co. No. 1 Dennis, sec. 68-10s-2e. T.D. 2,150 ft.; S.D.
Humble O. & R. Co. No. 1-B Community, sec. 49-10s-2e. Drlg. 1,450 ft.
Humble O. & R. Co. No. 3 Landry, sec. 34-10s-2e. T.D. 6,969 ft.; 7-in. csg. 6,-956 ft.; comp.; no report.
Kiva Oil Co. No. 1 Duplessis, sec. 69-10s-2w. S.D. 2,523 ft.
D. J. Simmons No. 1 August Berteau, sec. 55-10s-2e. Drlg. sh. 4,402 ft.

Dog Lake—Terrebonne Parish

Texas Co. No. 6 Dog Lake, sec. 5-22s-16e. Drlg. sdy. L. 6,820 ft.

Four Isle—Terrebonne Parish

Texas Co. No. 10 State, sec. 24-21s-16e. Drlg. sh.&L. 4,822 ft.

Gibson—Terrebonne Parish

Shell Pet. Corp. No. 1 Kuntz, sec. 40-17s-15e. Cg. shly. sd. 8,844 ft.

Garden Island—Plaquemines Parish

Texas Co. No. 29 State, sec. 38-23s-33e. Top salt 6,983 ft.; T.D. 6,993 ft.; 7-in. csg. 6,993 ft.; perf. csg. 6,880-6,925 ft.

Hackberry—Cameron Parish

Darryl Davis No. 1 Bickford, sec. 39-12s-10w. Drlg. sd. S.O. 2,836 ft.
Gulf Oil Corp. No. 1 Noble, sec. 22-12s-10w. T.D. 3,201 ft.; stk. D.S.; P.B. 2,-830 ft.; W.O.C.
F. J. LeBlanc No. 2 Landry, sec. 36-12s-10w. Drlg. sdy. sh. 3,200 ft.
John Merrick No. 2 Vincent, sec. 28-12s-10w. T.D. 3,148 ft.; 5-in. csg. 3,-131 ft.; swbg. wash wtr. and oil.
Stanolind O. & G. Co. No. 1 Dorisse Kuough, sec. 28-12s-10w. Rig.
Superior Oil Co. No. 3 Benson Vincent, sec. 30-12s-10w. Drlg. sh. 3,500 ft.
Texas Co. No. 24-B State, sec. 12s-9w. T.D. 8,052 ft.; blew out; stk. D.S.; hole cleaned out to 7,659 ft.; P.B. 6,-578 ft.; T.D. 6,686 ft.; P.B. to 6,480 ft.; sdtrkd.; drld. to 6,670 ft.; P.B. to 5,900 ft.; drlg. sd. 7,095 ft.
Union Sulphur Co. No. 44 Watkins, sec. 13-12s-10w. Sd. 2,802-28 ft.; flwg. 15 bbls. net oil per hr.; 20% wash wtr.; ¾-in. ck.

Horseshoe Bayou—St. Mary Parish

Texas Co. No. 2 State, sec. 37-17s-9e. R.U.

Jeanerette—St. Mary Parish

Herton Oil Co. No. 1-A Roane Sugar Co., sec. 38-13s-9e. T.D. 10,645 ft.; milling to sdtrk. stk. D.P.

Jefferson Island—Iberia Parish

Texas Co. No. 1 State-Lake Peigneur, Twp. 12s-5e. Drlg. sd.&pyrite 2,252 ft.

Jennings—Acadia Parish

W. T. Burton No. 6 Roboria, sec. 41-9s-2w. T.D. 6,797 ft.; 7-in. csg. 6,721 ft.; tstg.
Frio Oil Co. No. 1 Iowa-Jennings, sec. 45-9s-2w. T.D. 6,687 ft.; P.B. 4,300 ft. W.O.C.
Glassell & Glassell No. 5 Trushell, sec. 42-9s-2w. Drlg. L. 5,000 ft.
W. S. Noble et al No. 1 Ed Prather, sec. 45-9s-2w. Drlg. L. 5,040 ft.
Pet. Heat & Power Co. No. 1 Donnley, sec. 45-9s-2w. Drlg. sh. 1,858 ft.
Pet. Heat & Power Co. No. 1 Iowa-Jennings, sec. 45-9s-2w. T.D. 3,770 ft.; P. B. 1,055 ft.; to sdtrk.; cd. oil sd. 1,760 ft.; R.U. to pmp.; tstd. S.W.; S.D.
Pet. Heat & Power Co. No. 2 Iowa-Jennings, sec. 45-9s-2w. T.D. 2,167 ft.; P. B. 1,595 ft.; 5½-in. csg. 1,585 ft.; S.D.
Shell Pet. Corp. No. 4 Community, sec. 40-9s-2w. Drlg. sh. 3,558 ft.
Stanolind O. & G. Co. No. 112 Crowley Oil & Mineral Co., sec. 48-9s-2w. T.D. 6,838 ft.; P.B. 4,890 ft.; to sdtrk.
Superior Oil Co. No. 4 Iowa-Jennings, sec. 41-9s-2w. Drlg. 6,630 ft.
Superior Oil Co. No. 4 Clement, sec. 46-9s-2w. Drlg. sh. 4,910 ft.
Superior Oil Co. No. 7 Jennings-Heywood, sec. 41-9s-2w. Drlg.
Superior Oil Co. No. 13 Leckelt, sec. 42-9s-2w. T.D. 7,926 ft.; sdtrkd.; drlg. sh. 6,880 ft.
Superior Oil Co. No. 14 Leckelt, sec. 42-9s-2w. 7-in. csg. 7,470 ft.; T.D. 8,573 ft.; P.B. 7,070 ft.; perf. csg. to test.
Three Sands Oil Co. No. 1 Whisenhunt & Tyrell, sec. 46-9s-2w. Drlg. sh. 900 ft.
Victor Weisse No. 1 Clement, sec. 46-9s-2w. 6⅝-in. csg. 3,032 ft.; T.D. 3,255 ft.; fsg. for tbg.

Lafitte—Jefferson Parish

Carter-Perrin & Brian No. 1 Lucien, Adams, sec. 9-17s-24e. Drlg. 230 ft.
Texas Co. No. 11 Lafitte, sec. 19-17s-24e. Drlg. sh.&L. 9,223 ft.
Texas Co. No. 3 Madison Realty Co., sec. 17-12s-24e. Drlg. sh.&shlls. 3,140 ft.
Texas Co. No. 3 Marrero Ld. Co., sec. 29-17s-24e. T.D. 6,221 ft.; D.S. stk.
Texas Co. No. 10 Rigolet Cooperative Fur Co., sec. 28-17s-24e. Canal comp.

Lake Barre—Terrebonne Parish

Texas Co. No. 16 State, sec. 32-21s-19e. T.D. 4,280 ft.; P.B. 2,734 ft.; drlg. L. 3,600 ft.
Texas Co. No. 42 State-Lake, sec. 40-21s-19e. 9⅝-in. csg. 6,678 ft.; drlg. sh. 8,-525 ft.

Lake Hermitage—Plaquemines Parish

Gulf Ref. Co. No. 8 Lafourche, sec. 11-18s-25e. Drlg. hd. sd. 1,870 ft.

Leesville—Lafourche Parish

Wm. Helis No. 1-A City of New Orleans, sec. 35-21s-22e. T.D. 6,281 ft.; S.D.
Texas Co. No. 69 Leeville, sec. 27-21s-22e. No report.

Lirette—Terrebonne Parish

Humble O. & R. Co. No. 1 Robert Verret, sec. 32-19s-19e. Dredge canal.

Lockport—Calcasieu Parish

La. Crusader Oil Co. No. 1 Milam Stieker, sec. 6-10s-9w. Drlg. 106 ft.
Magnolia Pet. Co. No. 23 Miller, sec. 9-10s-9w. Drlg. sdy. sh. 6,782 ft.

Lake Long—Lafourche Parish

Fohs Oil Co. No. 5 State-Lake Long, sec. 64-17s-19e. Drlg. sh.&shlls. 2,475 ft.

New Iberia—Iberia Parish

Canal Oil Co. No. 10 Bernard, sec. 54-12s-7e. Drlg. L. 3,595 ft.
H. Fotiades No. 5 Gulf Ld., sec. 25-12s-7e. Drlg. sh. 3,020 ft.
H. Fotiades No. 7 Gulf Ld., sec. 25-12s-7e. Drk.
Wm. Helis No. 7 Bullock and Burke, sec. 25-12s-7e. T.D. 5,985 ft.; salt top 5,976 ft.; perf. csg. 5,245-5,805 ft.; tstg.
Wm. Helis No. 6 Schwing, sec. 56-12s-7e. Drlg. sdy. sh. 2,946 ft.
Texas Co. No. 2 Burke, sec. 56-12s-7e. T.D. 7,076 ft., salt; P.B. 4,350 ft.; sidetracking.
Texas Co. No 2 Schwing, sec. 71-12s-7e. Drlg. sd.&sh. 1,050 ft.
Texas Co. No. 4 Grelino, sec. 25-12s-7e. 10¾-in. csg. 779 ft.; drlg. sh. 5,220 ft.

North Crowley—Acadia Parish

Humble O. & R. Co. No. 3 Anton Ohlenforst, sec. 34-8s-1e. Drlg. hd. sh.&L. 6,-102 ft.

Port Barre—St. Landry Parish

T. C. Markley No. 1 Lahaye, sec. 4-6s-5e. T.D. 4,775 ft.; 7-in. csg. 4,608 ft.; tstd. S.W.; sdtrkd.; T.D. 4,648 ft.; csg. pulled above 1,400 ft.; run csg.
Pan American Prod. Co. No. 1 Lahaye, sec. 4-6s-5e. T.D. 5,426 ft., salt; top salt 5,422 ft.; P.B. to 3,900 ft.; T.D. 4,737 ft.; no report.
Y. D. Spill No. 1 Gaudet, sec. 4-6s-5e. S.D. 1,565 ft.

Potash—Plaquemines Parish

Humble O. & R. Co. No. 36 Orleans Lve. Bd., sec. 14-18s-15e. Drlg. hd. sh. 8,310 ft.

Quarantine Bay—Plaquemines Parish

Gulf Oil Corp. No. 1-A Orleans Levee Bd., sec. 18-19s-17e. Drlg. sh. 4,702 ft.
Gulf Ref. Co. No. 4 State, sec. 17-19s-17e. Drlg. sh. 11,119 ft.
Gulf Ref. Co. No. 5 State, sec. 17-19s-17e. Loc.
Gulf Ref. Co. No. 6 State, sec. 17-19s-17e. Driving piling.

Raceland—Lafourche Parish

Amerada Pet. Corp. No. 1 Godchaux Sugars, Inc., sec. 34-15s-19e. 18⅝-in. csg. 262 ft.; T.D. 11,312 ft.; 7-in. csg. 11,312 ft.; no report.
Amerada Pet. Corp. No. 2 South Coast Corp., sec. 35-15s-19e. 11¾-in. csg. 2,-666 ft.; drlg. sh. 10,911 ft.
Tide Water Asso. Oil Co. No. 1 South Coast Corp., sec. 33-15s-19e. R.U. and S.D.

Sorrento—Ascension Parish

Pan American Prod. Co. No. 12 United Ld. Co., sec. 15-10s-4e. No report.
Sorrento Pet. Corp. No. 2 White, sec. 22-10s-4e. R.U.

South Elton—Jeff Davis Parish

Stanolind O. & G. Co. No. 4-B Calcasieu Natl. Bnk., sec. 29-7s-3w. Loc.

South Roanoke—Jeff Davis Parish

Continental Oil Co. No. 1 Joe Sturdivant, sec. 36-10s-4w. T.D. 10,330 ft.; conditioning mud after trying to blow out.
Union Sulphur Co. No. 2 T. R. S. Farms, sec. 23-10s-4w. Drlg. sh. 9,736 ft.

Starks—Calcasieu Parish

Lutcher-Moore Co. No. 5 fee, sec. 19-9s-12w. T.D. 4,153 ft., salt; P.B. 3,987 ft.; 7-in. csg. 3,827 ft.; swbd. oil and S.W.; S.D. 3,857 ft.
J. R. Turnbull No. 1 Industrial Lbr. Co., sec. 19-9s-12w. Top salt 2,270 ft.; S.D.; 2,273 ft.; P.B. 1,150 ft.; S.D.

Timballer Bay—Lafourche Parish

Gulf Oil Corp. No. 4 State, sec. 36-23-21e. T.D. 7,373 ft.; twisted off drill collar; sdtrkd. jnk.; cd. sd. 5,332-36 ft.; tstd. 3 stands drlg. mud, oil and sd.; cd. oil sd. 5,336-43 ft.; T.D. 7,159 ft.; P.B. 6,500 ft.; sdtrkd.; drld. into old hole at 6,250 ft.; P.B. 6,140 ft.; W.O.O.; fsg.

Valentine—Lafourche Parish

Pan American Prod. Co. No. 1-A Community, sec. 99-17s-20e. No report.
Pan American Prod. Co. No. 2-B Community, sec. 58-17s-20e. No report.
Pan American Prod. Co. No. 1 A. Robichaux, sec. 3-17s-20e. No report.

Venice—Plaquemines Parish

Tide Water Oil Co. No. 8 Manhattan Ld. & Fruit Co., sec. 26-21s-30e. 24-in. csg. 91 ft.; no report.

Villa Platte—Evangeline Parish

Amerada Pet. Corp. No. 2 Fornier, sec. 44-35-2e. Drlg. sh. 4,223 ft.
Continental Oil Co. No. 1 A. M. Fontenot, sec. 46-3s-2e. Drlg. sh. 6,415 ft.
Continental Oil Co. No. 1 Oscar Pitre, sec. 44-3s-2e. Cd. oil sd. 8,992-9,053 ft.; T.D. 9,055 ft.; run perf. csg.; no report.
Continental Oil Co. No. 1 Opelousas, St. Landry, sec. 44-3s-2e. Drlg. sh. 8,961 ft.
Continental Oil Co. No. 1 Tate & McDaniel, sec. 44-3s-2e. Drlg. sdy. sh. 8,970 ft.
Continental Oil Co. No. 1 T. E. Vidrine, sec. 47-3s-2e. Drlg. sh.; T.D. 10,506 ft.; cmtd. bttm. of hole with cmt.; P.B. 9,014 ft.; perf. csg. 8,858-65 ft.; tstd. wtr.; T.P. 100 lbs.; C.P. 500 lbs.
J. R. Hughes Oil Co. No. 1 J. E. Ortego, sec. 36-3s-2e. Drlg.

Vinton—Calcasieu Parish

J. B. Reddich No. 3 Vincent, sec. 34-10s-12w. Loc.

Welsh—Jeff Davis Parish

A. V. Peters No. 3 fee, sec. 22-9s-5w. T.D. 1,020 ft.; 6⅝-in. csg. 950 ft.; stk. bailer; T.A.
Stanolind O. & G. Co. No. 2 Conover, sec. 20-9s-5w. T.D. 7,353 ft.; well tried to blow out; P.B. 3,590 ft.; sdtrkg. 7,-052 ft.
Stanolind O. & G. Co. No. 1 Pousson, sec. 28-9s-5w. Cmtd. 10¾-in. csg. 2,534 ft.

Woodlawn—Jeff Davis Parish

Union Sulphur Co. No. 1 O. Miller, sec. 7-9s-5w. Drlg. sh. 1,374 ft.

S. LOUISIANA WILDCATS

Avoyelles Parish

G. C. Koch et al No. 1 Kelone, sec. 21-2n-3e. 10¾-in. csg. 987 ft.; S.D. 6,021 ft.; prep. to resume drlg.

Calcasieu Parish

Union Sulphur Co. No. 1 Drew-Manuel, sec. 4-10s-11w. Drlg. sh. 8,329 ft.
Wheeler Oil Corp. No. 2 Sch. Ld., sec. 16-9s-7w. 15½-in. csg. 46 ft.; S.D. 641 ft.; T.A.

Cameron Parish

Humble O. & R. Co. No. 2 K. B. Hanzen, 466 ft. S and E. NW cor. SW¼ sec. 9-12s-6w. Drlg. sh. 9,310 ft.
Pure Oil Co. No. 1 Calcasieu Natl. Bnk., sec. 18-12s-4w. Drlg. sh.&L. 7,600 ft.
Superior Oil Co. No. 1 Sells, sec. 5-15s-8w. T.D. 6,350 ft.; 10¾-in. csg. 6,350 ft.; T.D. 10,085 ft.; S.D.

Iberia Parish

Texas Co. No. 2-B Vermilion Bay, sec. 20-16s-5e. T.D. 9,101 ft.; P.B. and sdtrkd. at 5,788 ft.; T.D. 7,020 ft.; P.B. 6,385 ft.; to sdtrk.; T.D. 7,623 ft.; P.B. 7,-176 ft.; to sdtrk.; T.D. 7,348 ft.; 9⅝-in. csg. 7,263 ft.; T.D. 9,667 ft.; set 2,990 ft. of 5¾-in. csg. 9,667 ft.; drld. plug to 9,667 ft.; well blew out; blowing dry gas; capped well; S.I.

Jeff Davis Parish

Union Sulphur Co. No. 1 H. J. Liggett, sec. 36-7s-5w. Drlg. sdy. sh. 6,983 ft.

Jefferson Parish

Julius Szodomka No. 1 Carroll, sec. 12-12s-11e. W.O. 4,960 ft.; sdy. sh.

Lafourche Parish

Sun Oil Co. No. 1 Dilbert Stark, Brown Cypress Co., sec. 70-15s-15e. Drlg. sh. &L. 5,293 ft.
Texas Co. No. 1 La Terre, sec. 1-20s-21e. Drlg. hd. sd. 7,538 ft.

Orleans Parish

W. T. Burton No. 1 R. E. E. de Montluzin, sec. 1-10s-13e. Drk.
W. T. Burton No. 1 State-Lake Pontchartrain, Twp. 10s-13e. T.D. 5,543 ft.; fsg. core bbl.

Rapides Parish

J. J. Farrell No. 1 W. P. Aertker, sec. 16-4n-1e. Drk.
E. F. Kalb et al No. 1 Lee Lbr. Co., sec. 9-5n-3e. R.U.

St. Bernard Parish

Gulf Ref. Co. No. 3 State Lake, Twp. 12s-15e. 13⅜-in. csg. 1,558 ft.; 9⅝-in. csg. 6,486 ft.; T.D. 10,278 ft., S.W. sd.; D.S. stk.; abd.

St. James Parish

Continental Oil Co. No. 1 Colonial Sugars Co., sec. 46-12s-5e. Drlg. sd.&sh. 6,-635 ft.
Continental Oil Co. No. 1 Realty Operators, sec. 17-12s-17e. 18⅝-in. csg. 302 ft.; 13⅜-in. csg. 2,473 ft.; 9⅝-in. csg. 6,520 ft.; tried to blow out; stk. D.S.; T.D. 7,499 ft.; fsg.

St. John the Baptist Parish

Shell Pet. Corp. No. 1 Godchaux, sec. 97-11s-7e. Drlg. sh. 6,700 ft.

St. Martin Parish

Shell Pet. Corp. No. 1 Jeanerette Lbr. Co., sec. 14s-12e. No report.
Texas Co. No. 6 State Lake Mongoulois, sec. 10-10s-9e. Drlg. sh. 2,652 ft.
Texas Co. No. 11 St. Martin Ld. Co., sec. 21-8s-7e. Drlg. sh.&L. 8,035 ft.

St. Tammany Parish

Ozro B. Phillips No. 1 A. J. Planche, sec. 28-6s-10e. S.D. 3,118 ft.

Terrebonne Parish

Barnsdall Oil Co. No. 1 R. R. Barrow, Inc., sec. 41-17s-18e. Drlg. brittle sh. 10,287 ft.
Fohs Oil Co. No. 1 State, sec. 41-19s-19e. 18⅝-in. csg. 246 ft.; cd. sd. S.G. 6,894-9,226 ft.; T.D. 12,511 ft.; 7-in. csg. 12,-215 ft.; T.D. 13,347 ft.; stk. D.S.; P.B. 11,100 ft.; perf. csg. 11,172-78 ft.; made 6-min. D.S.T.; 600 lbs. press.; ¼-in. ck.
Shell Pet. Corp. No. 1 Peters, sec. 73-18s-18e. T.D. 8,461 ft.; run elec. sur.
Shell Pet. Corp. No. 1 Realty Operators, sec. 10-18s-16e. 13⅜-in. csg. 2,461 ft.; cg. sd. 10,021 ft.
Texas Co. No. 1 State. Callau Island Bay, Twp. 23s-14e. Spd.

Vermilion Parish

Magnolia Pet. Co. No. 1 H. Reece, sec. 5-12s-2w. Bldg. road to loc.

Vernon Parish

Mike Halbouty et al No. 1 Gulf Lbr. Co., sec. 15-1n-6w. Drlg. sh. 6,108 ft.

TEXAS

Week Ending July 23

GULF COAST FIELDS

Lockridge—Brazoria County

Gulf Oil Corp. No. 8-A Wilkes & Smith, J. W. Hall Sur. No. 11. Drlg. sh.& bldrs. 4,098 ft.
Shell Pet. Corp. No. 5-B Ramsey State farm, J. W. Hall Sur. Drlg. sh. 4,-826 ft.

Hastings Field—Brazoria County

Humble O. & R. Co. No. 9 J. E. Alexander, H.T.&B. Sur. 28. Drk.
Humble O. & R. Co. No. 1 W. F. Beers, Perry & Austin Sur. Drlg. sh. 1,210 ft.
Humble O. & R. Co. No. 9 W. H. Schindler, H.T.&B. Sur. No. 30. T.D. 6,050 ft.; comp.; 651 B.P.D.; ¼-in. ck.
Humble O. & R. Co. No. 11 W. G. McDeed, H.T.&B. Sur. No. 27. T.D. 6,060 ft.; comp.; 584 P.B.D.; ¼-in. ck.
Stanolind O. & G. Co. No. 5 Froberg, R. A. Magee Sur. Drk.
Stanolind O. & G. Co. No. 11 E. Grote, A.C.H.&B. No. 2 Sur. T.D. 1,250 ft.; 10¾-in. csg. 1,245 ft.
Stanolind O. & G. Co. No. 7 Matsushita, H. Stevens Sur. Sd. 6,050 ft.
Stanolind O. & G. Co. No. 21 Steve Paul, A.C.H.&B. Sur. Drlg. sh. 4,550 ft.
Stanolind O. & G. Co. No. 3-B Stockwell, A.C.H.&B. Sur. No. 2. Drlg. sh. 5,930 ft.

Old Ocean—Brazoria County

Harrison & Abercrombie No. 1 R. D. McDonald, C. Breen Sur. No report.
Harrison & Abercrombie No. 1 C. Larsen, Chas. Breen Sur. No report.
Harrison & Abercrombie No. 1 Sadler & Larsen, C. Breen Sur. No report.
Harrison & Abercrombie No. 1 West Texas Abst. Co., C. Breen Sur. No report.

Stratton Ridge—Brazoria County

Sterling O. & R. Co. No. 1 J. C. Kramer, T. W. Grayson Sur. Drlg. sh. 3,055 ft.

West Columbia—Brazoria County

Adrian Moore No. 4 Gulf fee. G. Tennille Sur. T.D. 5,397 ft.; comp.; 460 B.P.D.; ¼-in. ck.
Frost & Dunman No. 1 Mary C. Masterson, G. Tennille Sur. T.D. 5,324 ft.; 7-in. csg. 5,265 ft.; comp.; 590 B.P.D.; ¼-in. ck.
Frost & Dunman No. 2 Parker, G. Tennille Sur. Rig.
Texas Co. No. 24 Abrams, G. Tennille Sur. T.D. 5,622 ft.; P.B. 5,596 ft.; perf. 5,554-95 ft.; comp.; 465.30 B.P.D.; ¼-in. ck.
Texas Co. No. 25 W. H. Abrams, G. Tennille Sur. Drlg. sh. 5,200 ft.
Texas Co. No. 3 Rebecca Goldman, G. Tennille Sur. Drlg. sh. 4,354 ft.

Cedar Point Field—Chambers County

Standard Oil Co. of Texas-Salt Dome Oil Corp. No. 1-94 State. Drlg. sdy. sh. 6,450 ft.

Cotton Lake—Chambers County

J. R. Turnbull No. 1 Casey, S. Barrow Sur. Drlg. sh. 6,493 ft.
Gillespie-Colcord No. 1 Lawrence, S. Barrow Sur. Cmtd. 10-in. csg. 1,167 ft.

Seabreeze—Chambers County

Sun Oil Co. No. 3 Broussard-Hebert, T. &N.O. Sur., sec. 127. Spd.

Greens Lake—Galveston County

Sun Oil Co. No. 2 Houston Farm Dev. Co., D. Buckley Sur. Drlg. sdy. sh. 6,-675 ft.

Hitchcock—Galveston County

N. W. Hunter No. 2 Carco, Burke Sur. Drk.
Maco Stewart No. 3 fee, J. Spillman Sur. T.D. 5,148 ft.; comp.; 557 B.P.D.; ¼-in. ck.

Bammel—Harris County

H. M. Harrell et al No. 1 Polley, C. G McLean Sur. T.D. 6,286 ft.; perf. csg. 6,257-61 ft.; flwd. 150 bbls. fluid, 60% oil, 40% S.W.; no report.

Clinton—Harris County

S. G. Harrison No. 1 Lafferty, J. Brown Sur. Loc.
Stanolind O. & G. Co. No. 2 Edwards, Reels & Trobough Sur. Drk.
Stanolind O. & G. Co. No. 3 Sanders, Reels & Trobough Sur. Loc.

Eureka—Harris County

Jack Frazier No. 1 Lackner, H. Reinerman Sur. Loc.
J. Frazier No. 3 Vollmer-Neiman, J. Reinerman Sur. Perf. csg. 7,862-7,700 ft.
Houston Oil Co. No. 1-D Laura Lackner, H. Reinerman Sur. T.D. 7,721 ft.; 5½-in. csg. 7,718 ft.; perf. csg. 7,687-7,702 ft.
Means & McGehee et al No. 1-B Laura Lackner, H. Reinerman Sur. No report.
Tide Water Associated Oil Co. No. 1 Laura Lackner, J. Reinerman Sur. T.D. 7,800 ft.; perf. csg. 7,755-67 ft.; comp.; 556 B.P.D.; ¼-in. ck.
Tide Water Asso. Oil Co. No. 2 Laura Lackner, J. Reinerman Sur. Rig.

Fairbanks—Harris County

Amerada Pet. Corp. and Stanolind O. & G. Co. No. 1 Berryman and Emmott, J. Waugh Sur. Loc.
Amerada Pet. Corp.-Stanolind O. & G. Co. No. 2 R. S. Smith, J. Waugh Sur. Drlg. sh. 6,430 ft.
Amerada-Stanolind O. & G. Co. No. 1 Adell, J. Clarkson Sur. Drk.
Amerada-Stanolind O. & G. Co. No. 2 M. E. Cougat, Geo. Ayers Sur. T.D. 6,-855 ft.; 5½-in. csg. 6,854 ft.
Amerada-Stanolind O. & G. Co. No. 3 M. E. Cougat, Geo. Ayers Sur. Loc.
Amerada-Stanolind O. & G. Co. No. 1 M Korasz, G. Williams Sur. T.D. 6,845 ft.; 5½-in. csg. 6,844 ft.; perf. 6,833-40 ft.; flwd. 257 bbls. in 12 hrs.; ¼-in. ck.; T.P. 1,700 lbs.; C.P. 2,450 lbs.
Amerada-Stanolind O. & G. Co. No. 4 H. E. Ley, J. Waugh Sur. Drlg. sd. 856 ft.
Amerada-Stanolind O. & G. Co. No. 2 O. J. Post, Geo. Ayers Sur. T.D. 6,857 ft.; 5½-in. csg. 6,856 ft.; perf. 6,843-51 ft.
W. V. Bowles No. 3 Galloway, May McFarland Sur. No report.
Carroll Oil Co. No. 1 Ralph Johnston, J. N. Dement Sur. T.D. 6,864 ft.; perf. csg. 6,839-43 ft.; would not flow; S.D.
Gem Oil Co. No. 2 B. W. Reid, Geo. Ayers Sur. T.D. 6,857 ft.; perf. 5½-in. csg. 6,851½-55 ft.; flwd. 171 bbls. in 6 hrs.; ¼-in. ck.; T.P. and C.P. 1,000 lbs.
Gem Oil Co. No. 5 Reid, G. Ayers Sur. Drlg. sh. 961 ft.
E. M. Hailey No. 1 Albert Brown, J. Clarkson Sur. Loc.
Showers & Moncrief No. 2 H. E. Ley, J. Waugh Sur. T.D. 6,845 ft.; 7-in. csg. 6,845 ft.; perf. 6,835½-40½ ft.; tstg.
Skelly Oil Co. No. 1 J. H. Emmott, J. Waugh Sur. T.D. 6,843 ft.; 5½-in. csg. 6,843 ft.
Smith and Ownby Drlg. Co. No. 1 J. Stephens. No report.
Union Prod. Co. No. 1 Goodykoontz, W. S. Powell Sur. T.D. 7,617 ft.; S.W. sd.; perf. 5½-in. csg. 7,222-25 ft.; flwd. est. 10 bbls. net oil per hr. into pits; showed brksh. wtr.; ¼-in. ck.; T.P. 300 lbs.; C.P. 175 lbs.
Williams & Thompson No. 1 Marietta, G. Williams Sur. No report.
Windsor Oil Co. No. 2-A Ley, Geo. Ayers Sur. S.D. 1,207 ft.
Windsor Oil Co. No. 3 H. E. Ley, J. Waugh Sur. T.D. 6,844 ft.; comp.; 649 B.P.D.; ¼-in. ck.; T.P. 1,650 lbs.; C.P. 2,550 lbs.
Windsor No. 5 H. E. Ley, J. Waugh Sur. Rig.

Friendswood—Harris County

Humble O. & R. Co. No. 11 L. S. Beamer, T. Choate Sur. T.D. 6,045 ft.; 5½-in. csg. 5,909 ft.
Humble O. & R. Co. No. 15 Beamer, Thomas Choate Sur. Drlg. 4,100 ft.
Humble O. & R. Co. No. 16 Beamer, Thomas Choate Sur. Rig.
Humble O. & R. Co. No. 17 Beamer, Thomas Choate Sur. Drk.
Humble O. & R. Co. No. 1 F. E. Gavin et al, A. M. Gentry Sur. Drlg. sh. 1,-090 ft.
Humble O. & R. Co. No. 3 Herman Hospital, T. Choate Sur. Drk.
Humble O. & R. Co. No. 1 J. L. Jones, Perry & Austin Sur. Drk.
Humble O. & R. Co. No. 1-B Port City Ice Co., W. D. C. Hall Sur. T.D. 6,045 ft.; 5½-in. csg. 5,839 ft.; comp.; 27½ B.P.H.; ¼-in. ck.; T.P. 850 lbs.
Humble O. & R. Co. No. 3 Settegast, T. Choate Sur. Drk.
Humble O. & R. Co. No. 1 E. E. Watson. Drk.

Cordele—Jackson County

H. J. Porter No. 2 Pressley, P. White Sur. Oil sd. 2,673 ft.; 7-in. csg. 2,665 ft.; swbd. dry.; W.O.
H. J. Porter No. 1 Woussi, Peter White Sur. Loc.

Clam Lake—Jefferson County

Shell Pet. Corp. No. 2 McFaddin, S. A. Pace Sur. T.D. 8,198 ft., salt; top salt 8,156 ft.; 5-in. csg. 5,659 ft.; perf. 5,-548-52 ft.; swbd.; no show; W.O.

Cheek—Jefferson County

Shell Pet. Corp. No. 1 Ed. Pleasant, C. Hildebrand Sur. Drlg. sh. 6,675 ft.

North Cheek—Jefferson County

Magnolia Pet. Co. No. 5 J. H. Phelan, A. Stivers Sur. Drlg. 6,392 ft.

Hardin—Liberty County

Atlantic Ref. Co. No. 2 J. F. Richardson, A. B. Hardin Sur. No report.
Atlantic Ref. Co. No. 2 C. R. Wilson, A. B. Johnson Sur. Rig.
Geo. Echols-Shell Pet. Corp. No. 1 J. H. Cessna, H. B. Johnston Sur. T.D. 7,-656 ft.; perf. 5½-in. csg.
Gulf Oil Corp. No. 4-A Barfield. Drlg. stky. sh. 3,489 ft.
Gulf Oil Corp. No. 2 A. B. Tullos, H. B. Johnston Sur. Drlg. sh.&L. 5,065 ft.
Halliburton Oil Prod. Co. No. 1 C. C. Hanchy, H. B. Johnston Sur. T.D. 7,-650 ft.; comp.; 540 B.P.D.; ¼-in. ck.
Humble O. & R. Co. No. 1 M. H. Jonnson, H. B. Johnston Sur. Rig.
Humble O. & R. Co. No. 3 W. S. Partlow, H. B. Johnston Sur. Cg. 7,625 ft.
Shell Pet. Corp. No. 3 J. H. Cessna, H. B. Johnston Sur. Drlg. sh. 5,100 ft.
Shell Pet. Corp. No. 4-A J. H. Cessna, H. B. Johnson Sur. Drk.
Woodley Pet. Corp. No. 2 Chambers, H. B. Johnston Sur. Drlg. sh. 4,568 ft.
Woodley Pet. Co. No. 1 Lynott & Buffam, Jas. Robeson Sur. Drlg. sh. 4,-863 ft.

McCrosky—Matagorda County

Pierce Est. No. 4-A Pierce. T.D. 6,626 ft.; 5½-in. csg. 6,621 ft.; flwd. 103 bbls. in 12 hrs.; ¼-in. ck.

Bay City—Matagorda County

Atlantic Ref. Co. No. 1 Gola. E. Hall Sur. Drlg. hd. sdy. sh. 9,355 ft.
Hamman Expl. Co. No. 1 C. W. Badouh, E. Hall Sur. Drlg. sh. 6,120 ft.

Segno—Polk County

Gulf Oil Corp. No. 11 Wing, F.&G.N. Sur. No. 14. Cg. 5,634 ft.
Gulf Oil Corp. No. 12 Wing. Drlg. sh. 3,121 ft.
Humble O. & R. Co. No. 9-B Kirby, M. Victor Sur. M.I.M.

Spurger—Tyler County

Republic Prod. Co.-Houston Oil Co. No. 11 Hurd fee, N. Hurd Sur. No report.

Magnet—Wharton County

Gray & Wolf No. 1 State, Colo. River Sur. Drlg. sh. 100 ft.

GULF COAST WILDCATS

Brazoria County

Fabriguze et al No. 1 Freeport Sulphur, Stephen F. Austin Sur. (Bryan Mound). M.I.M.
W. C. Neville et al No. 1 Houston Farms Dev. Co., Perry & Austin Sur. Rig.
Sterling O. & R. Co. No. 1 Kramer, T. W. Grayson Sur. (Stratton Ridge). Drlg. sh. 3,055 ft.
Texas Co. No. 1 M. W. Jones, H.T.&B. Sur. Drlg. sh. 5,305 ft.
Texas Co. No. 5 Freeport Sulphur Co., H. Burt Sur. No report.

Burleson County

Peerless O. & G. Co. No. 1 G.C.&S.F. fee, James Lastley Sur. Drk.

All Sizes of MAC BALLS & SEATS in STEEL . . . . BRASS BRONZE AND STAINLESS

Ask for complete details and price list.

McGREGOR WORKING BARREL COMPANY

Bradford, Pa., U.S.A.

Chambers County

Geo. Anderson No. 1 Julia Casey, W. D. Smith Sur. Loc.

Fort Bend County

Henry C. Adams No. 1 Sury, H.&T.C.R. R. Sur., sec. 48 (Needville). M.I.M.
Jack Frazier No. 1 Baker, Barrett and Harris Sur. Cg. sdy. sh. 6,146 ft.
Strake Pet. Corp. No. 1 G. L. Dew, D. Bright Sur. Abd. 7,511 ft.
Sam E. Wilson No. 1 Mt. Wood. Chas Heywood Sur., C Lot 93. Drlg. sd.& sh. 5,940 ft.

Galveston County

Sun Oil Co. No. 1 Cade, A. Dickinson. 13⅜-in. csg. 2,218 ft.; T.D. 8,094 ft.; sdtrkd.; drlg. sh. 7,453 ft.

Harris County

Commerce Oil Co. No. 1 Meaderbrook Dev. Co., J. R. Harris Sur. Drlg. sh. 6,015 ft.
H. H. Givens No. 2 F. K. Adone, David Middleton Sur. Drk.
O. W. Killam No. 1 M. A. Dodd, W.C R.R. Sur., sec. 12. Abd. 7,015 ft.

Jasper County

John Mayo No. 1 Cartwright, Legrande Sur. Drlg. sh. 7,400 ft.

Jackson County

J. K. Dorrance No. 1 F. J. H. Guethlein, Morris & Cummings Sur. Cg. sdy. sh. 5,636 ft.
Magnolia Pet. Co. No. 3-A West Rnch., Ramon Musquez Sur. M.I.M.

Jefferson County

I. E. Harwell No. 1 State, Gulf of Mexico. T.D. 5,840 ft.; D.S. stk.; pulled in two: S.D.
Humble O. & R. Co. No. 6 McFaddin State "B," 1,980 ft. NW of No. 1 State Gulf of Mexico. Cmtd. surf. pipe 390 ft.

Liberty County

Wallace & Hargrove et al No. 1 J. C. League, M. DeLos Santos Sur. Rig.
Sun Oil Co. No. 1 Caroline Jordan, L. Gedruf Sur. Drlg. sh.&L. 6,336 ft.
Texas Co. No. 1 Paige, James Hanney Sur. Drlg. sh. 4,976 ft.

Matagorda County

Glenn H. McCarthy No. 1 Nancy Moffett et al, Susan Perkins Sur. Loc.
Ohio Oil Co. No. 1 W. D. Cornelius, P. C. Yarborough Sur. Loc.

Montgomery County

Deep South Pet. Corp. No. 1 Foster Lbr. Co., Preyor Bryan Sur. Spd.; no report.
E. R. Kirkpatrick No. 1 Foster Lbr. Co., T.&N.O. Sur. No. 7. Abd. 5,819 ft.
J. Smith et al No. 1 J. V. Scott, F. A. B. Wheeler Sur. R.U.

Polk County

C. E. Gates No. 2 I. O. Jackson, J. W. Abbey Sur. Drk.

Waller County

Stanolind O. & G. Co. No. 1 Freeman H.T.&C. Sur. No. 99. Drlg. sh. 10,950 ft.

Wharton County

Humble O. & R. Co. No. 1 Duncan, D. Wade Sur. No report.
Humble O. & R. Co. No. 1 Worington, S. F. Austin Sur. Drk.
Albert Plummer No. 1 Mrs. Corbett, Kuykendall Sur. R.U.
Albert Plummer No. 2 M. Sorrell, S. F. Austin Sur. T.D. 3,733 ft.; 5½-in. csg. 3,690 ft.; P.B. 3,605 ft.; perf. 3,008-20 ft.; comp.; 1,200,000 ft. wet gas; ⅛-in. ck.; T.P. 1,450 lbs.

S. W. TEXAS WILDCATS

Atascosa County

Hartman Drlg. Co. No. 1 Smith and Mowinkle, Francisco Perez Sur. No. 172. Spd.
Altgell Mason No. 1 Vanegar, Francisco De La Garza Sur. S.D. 2,796 ft.; run csg.
G. C. Richardson No. 1 Fischer, A.B.& M. Sur. No. 1013. Sd. 844-55 ft.; run csg.

Bastrop County

R. C. Franklin No. 2 Yarrington, Jose Manuel Bangs Sur. S.D. 1,725 ft.
Oscar Raez No. 1 Walters, Michael Grun Sur. Drlg. sh. 1,640 ft.; no report.
Paul Texas and Ashby No. 1 J. T. Grizzard, Andrew Graham Sur. S.D. 4,661 ft.

Bee County

Dirks Bros. No. 1 Robertson, A. J. Davis Sur. Cg. 4,020 ft.

Bexar County

Fain-Harrison and Jenkins No. 1 Hansen, John Christopher Sur. 10-in. csg. 28 ft.; 6⅝-in. csg. 1,340 ft.
Nami Herman No. 1 W. F. Fields, A. Bustillos Sur. T.D. 737 ft.; 5¼-in. csg. on bttm.; prep. to D.D.

Caldwell County

Banke Miller Oil Co. No. 1 Martindale. Hector McNeil Sur. T.D. 3,223 ft.; S.D.

Calhoun County

Hiawatha O. & G. Co. No. 2 J. J. Roemer, J. Ogsberry Sur. Drlg. sh.&L 4,125 ft.

De Witt County

Marjo Oil Co. No. 1 W. D. McCurdy, John Hunt Sur. Drlg. sh. 1,036 ft.; no report.

Duval County

Ark. Fuel Oil Co. No. 2 Cuellar, sec. 96. T.D. 5,541 ft.; P.B. to test sd. 2,880-85 ft.
N. V. Duncan No. 1 Worden-Drought, Juan Lopez Sur. No. 154. T.D. 1,501 ft.; abd.
James Foster No. 1 Foster, B.S.&F. Sur. No. 268. T.D. 1,531 ft.
Frank Gravis No. 1 Megerle, J. Boyles Sur. Drlg. 4,610 ft.
Magnolia Pet. Co. No. 1 Duval County Ranch Co., J. M. Balli Sur. Drlg. 2,-040 ft.
W. A. Richardson No. 1 New, J. Poitevent Sur. No. 287. Abd. 4,303 ft.
Standard Oil Co. of Texas No. 1 Dolores Garcia Sur. Cg. sdy. sh. 5,102 ft.

Edwards County

Evans & Love No. 1 Steve Brown, Blk. 6, G.W.T.&P. Sur. S.D. 6,261 ft.

Frio County

F. L. Thompson No. 1 Davis, G.B.&C.N. G. Sur. No. 1. T.D. 5,687 ft.; abd.

Goliad County

Bunte Prod. Co. No. 1 Crews, Maria Jesusa DeLeon Sur. Abd. 5,710 ft.
Geo. Echols No. 1 Power, Wm. Lavery Sur. T.D. 4,665 ft.; trying to blow out.
Jack Frazier and Bunte Prod. Co. No. 1 Taylor. Rig.
Sun Oil Co. No. 1 Lee Homer, John Payne Sur. Spd.

Gonzales County

Heard-Hall & Young No. 1 Clark, Robt S. Armistead Sur. Drlg. sh. 1,015 ft.; no report.

Guadalupe County

Banks-Miller Oil Co. No. 1 Union Central, R. G. Davis Sur. Drlg. Taylor 1,-624 ft.

Hidalgo County

R. E. Harding No. 1 Lynn, Juan Jose Hinojosa Sur. Drlg. sdy. sh. 7,300 ft.; cmtd. 5½-in. csg. to test sd. 7,331-50 ft.
Hidalgo Prod. Co. No. 1 Daskam Corp., Porc. 45, Blk. 34. T.D. 3,296 ft.; D.S. stk.; pulled drk. in; S.D.
Wheelock & Collins No. 1 Temple Lbr. Co., Lino Cavaos, Porc. 57-A. Drlg. sdy. sh. 3,609 ft.

Jim Hogg County

Humble O. & R. Co. No. 2 Kelsey Bass, San Rafel Gr. Drlg. 1,200 ft.

Jim Wells County

E. Calloway et al No. 1 E. O. Cook, Lavaca Grant Sur. T.D. 5,511 ft.; 7-in. csg. 5,350 ft.; perf. csg. 5,176-83 ft.; comp.; 18 bbls. dist. daily; T.P. 1,950 lbs.; C.P. 2,150 lbs.
Humble O. & R. Co. No. 1 Wm. Adams, Marcellino Lopez Gr., Abst. No. 28. Drlg. sh. 3,870 ft.
Magnolia Pet. Co. No. 1 Martin, Ana Maria Vaco Gr. Rig.
Magnolia Pet. Co. No. 1 Valades Hrs., La Anima Sola Gr. T.D. 6,390 ft.; to run csg.; tried to blow out.
Mills Bennett Prod. Co. No. 1 W. R. Perkins, Lavaca Gr. T.D. 5,664 ft.; sdtrkg. 3,321 ft.
Rehmet & Wolcott No. 1 Balzon, I.&G. N. R.R. Sur., sec. 142, C Lot 27. 10¾-in. csg. 499 ft.; T.D. 5,259 ft.; abd.
Shell Pet. Corp. No. 1 C. H. Von Blucher, Lucinda Best Sur. Drlg. sh. 4,-965 ft.
Southern Minerals Oil Corp. No. 1 J. R. Trussells, Lavaca Gr. 10¾-in. csg. 540 ft.; S.D. 4,000 ft.

Kendall County

Geo. Dorsey No. 1 Flanagan, J. Sweeney Sur. No. 12. S.D. 350 ft.
Millican and Norman No. 1 Werner, J. F. Torrey Sur. Drlg. 671 ft.; no report.

Kerr County

Edminston No. 1 Saul, Sur. 47. S.D. 55 ft
H. C. Starkey No. 1-A Saue, T.W.N.G. R.R. Sur. S.D. 345 ft.

Kimble County

C. A. Dawson et al No. 1 Wilkinson, Brook and Burleson Part., B.S.&F. Sur. No. 23. T.A. 420 ft.
Phillips Pet. Co. No. 1 Mudge, C.C.S.D.& R.G.N.G.R.R. Sur. No. 9. Drlg. 1,000 ft.
Plateau Oil Co. No. 1 Hunger, J. Dujner Sur. Spd.

Kleberg County

Pure Oil Co. et al No. 1 State Ld., Tr. 68, Laguna Madre Bay, Lse. No. 528 Cmtd. 9⅝-in. csg. 7,617 ft.; (protection).

Lee County

Eleoussa Oil Co. No. 1 Sanders, J. Vin Roeder Sur. T.D. 4,398 ft.; prep. to resume drlg.
Fred Pederson et al No. 1 Brown, David Hudson Sur. 16-in. csg. 200 ft.

Live Oak County

J. K. Adair No. 1 Schultz Live Stock Co., Wm. J. Pierce Sur. 10¾-in. csg. 20 ft.; S.D. 494 ft. for wtr.
R. H. Feltner No. 1 Reed, I.&G.N. R.R. Sur. 15, R.U.
Hanna et al No. 2 West, C. O. Ragland Sur. S.D. 1,850 ft.
Humphrey et al No. 1 Schultz Live Stk. Co., A. E. Brown Sur. Cg. 1,952 ft.
Lomack Oil Co. No. 1 Reed, I.&G.N. Sur. No. 15. T.D. 4,500 ft.; abd.
Palmer et al No. 1 Brown, G. F. Simmons Subd. Drlg. 1,500 ft.
V. G. Schimmel et al No. 1 Geo. West, G. L. Haas Sur. T.D. 210 ft.
Tetbo Oil Co. No. 1 Ybanez, J. Poitevent Sur. Drlg. sh. 2,300 ft.
Wallace & Jones No. 1 Burrows, Eneas Smith Sur. R.U.

McMullen County

H. J. Boysen and Jones No. 3 Nueces Ld. & Livestock Co., S. M. Williams Sur. No. 229. Abd. 1,000 ft.
Bridwell Oil Co. No. 1 Nueces Ld. & Livestock Co., T. Ward Sur. No. 489 Abd. 1,711 ft.
Heard-Hall and Young No. 1-A Byrne, Geo. Pittuck Sur. No. 7. Loc.
S. M. Nesser No. 1 Franklin J Poitevent Sur. No. 33. T.D. 3,027 ft.; abd.
Red Bank Oil Co. No. 1 Nueces Ld. & Livestock, J. McGrain Sur. R.U.

Maverick County

L. M. Lockhart No. 1 Ashbrook, W. J. Phillips Sur. No. 83. R.U.
Wellington Oil Corp. No. 1-B Chittim, I. &G.N. Sur., Blk. 6, sec. 98, 14 mi. SE of Eagle Pass. Rig.

Medina County

J. W. Cromwell No. 1 J. W. Tondre, J. J. Rogers Sur. T.D. 1,250 ft.; P.B. 1,-080 ft.; cmtd. csg. 1,021 ft.
D. K. J. Oil Co. No. 1 Burrell. T.D. 2,-039 ft.; no report.
Geo. Hayes and Tarver No. 1 Mann, J. H. Isbell Sur. No. 10. S.D. 500 ft.
Taylor & Pepper No. 1 Saathoff, Peter Eichorn Sur. T.D. 935 ft.; fsg.
M. L. Walker No. 1 Zuberbulen, A. Bonamy Sur. R.U.; S.D.
Ziegler et al No. 1 Wiemers, F. Thurmm Sur. Loc.

Milam County

Clark & Morgan No. 1 Johnson, Juan Jose Acosta Sur. T.D. 1,971 ft.; abd.
Fritz Fuchs No. 1 Stark, M. J. Dalgado Sur. T.D. 1,390 ft.; abd.
Fritz Fuchs No. 2 Stork, Maria J. Delegado Sur. M.I.M.
Texedo Oil Co. No. 1 Graham, Charles Cornea Sur. Logged S.O. 1,135-36 ft., T.D. 1,808 ft.; T.A.
Texedo Oil Co. No. 1 Paul Garves, C. Robertson Sur. S.D. 1,170 ft.; C.O.: set 7-in. csg. 1,167 ft.; S.D. 1,520 ft.
Western Gulf Pet. Co. No. 1 Batte, Jose Teal Sur. Abd. 3,350 ft.; Edw. L.

Nueces County

Coast Line Oil Co. No. 1 State (Redfish Bay), State Tr. No. 32. T.D. 8,660 ft.; 7-in. csg. 8,637 ft.; perf. csg. 8,254-60 ft.; tstd. S.W.; sqzd.
Seaboard Oil Corp. No. 1 F. C. Lockett, E. Villareal Sur. Drlg. sh. 3,243 ft.

Refugio County

I. J. Allen No. 2 Rooke, Jose Miguel Addrite and Jose Maria Aldrite 6¼ Lge. T.D. 6,907 ft.; P.B. 5,440 ft.; perf. csg. 5,428-32 ft.; 15-min. D.S.T. recvd. 270 ft. oil and 900 ft. S.W. sqzd.

San Patricio County

Humble O. & R. Co. No. 1 B. G. Henry, 4th Addn., Taft Farm Lds., Blk. 8, sec. 27, 2 mi. NE of Taft field. R.U.

Starr County

Sun Oil Co. No. 1 Smith, A. J. Smith Sur. Loc.
Sunrise Pet. Co. No. 1 Calderoni, Jose Antonio Falcon, Porc. 80, Sh. 58. S.D. 800 ft.
Wheelock & Collins No. 1-A Guerra, Santa Cruz Gr. Cg. sd. S.O.&G. 6,639 ft.; T.D. 7,010 ft.; P.B. 5,950 ft.; perf. csg. 5,927-30 ft.; tstd. 450 ft. mud and brksh. wtr.; 650 lbs. press.; tstg.
W. W. Zimmerman et al No. 1 Starr Co. Cattle Co., Juan De La Garza, Porc. 89. No report.

Travis County

L. G. Priest No. 1 Mazock, J. M. Leavy Sur. No. 5. Drlg. 450 ft.; no report.
John R. Sterrett No. 1 Washington, Jose Antonio Navarro Sur. Drlg. L. 1,942 ft. No report.
R. F. C. Oil Co. No. 1 Jones, Reuben Hornsby Sur. No. 17. S.D. 1,050 ft.

Victoria County

Superior Oil Co. No. 1 A. R. Robertson, C Lot 10, Blk. R, Allison Richey Subd. Abd. 5,529 ft.

Webb County

Garrison & Paris No. 1 Benavides, Hale Subd. of M. Arispe Gr., C Blk. 107, R.U.
W. F. Houser No. 1 Garcia-Villareal, J. M. Garcia Sur. T.D. 2,565 ft.; perf. csg. 2,492-95½ ft.; est. 5,000,000 ft. dry gas; ¾-in. ck.; T.P. 800 lbs.
W. R. Nicholson No. 1 fee, M. Valpe Sur. Drlg. sh. 760 ft.

Williamson County

F. J. Anderson No. 1 Teichelman Absalam, Jett Sur. Drlg. 43 ft.; no report.

Wilson County

Stapper Oil Co. No. 1 J. McDaniel, T. Manchoca Sur. Twisted off D.S. at 2,-350 ft.; fsg.

Zapata County

C. H. Lewis No. 1 Garza, Blk. 13, Sur 413. Cg. 1,440 ft.
Thompson & Lowe No. 1 Ramirez, Blk. 6, Doyle Subd. of Porc. 18. Drlg. sd. 523 ft.

EAST TEXAS

(Border counties)

Bowie County

King Oil Corp. No. 1 Watts, Geo. Brinlee Sur. T.D. 4,574 ft.; prep. deepen.

Cass County

Harry Hanbury No. 1 Echols et al, SE cor. Echols tr., Wm. Mayes Sur. Drlg. 100 ft.
H. T. Morgan No. 1 Mayo, Bryant Holmes Sur. Set 9⅝-in. csg. 1,002 ft.

Marion County—Rodessa

Ark-La Gas Co. No. 1 Belcher, Cov Sur. Set 7-in. csg. 6,075 ft.; T.D. 6,112 ft.; comp.; 173 B.P.D.; ¼-in. ck.; T.P. 100 lbs.; C.P. 750 lbs.
Ark.-La. Gas Co. No. 1 Johnson, Alex. Johnson Sur. Drlg. anhy.&sh. 5,261 ft.
Ark.-La. Gas Co. No. 1 Walker, Humphries Sur. R.U.
Bauman Dunn & Fisher No. 1 Graham, John Hanks Sur. Drlg. L.&sh. 6,012 ft.
T. Bell et al No. 1 Moseley, D. Lane Sur. T.D. 2,768 ft.; drlg. plug.
Gulf Oil Corp. No. 1 Blake, Jackson Sur. Set 5-in. csg. 5,987 ft.; T.D. 5,993 ft.
Harvey, Henderson & Clardy No. 5-B Henderson, Ewing Sur. Perf. 6,026-32 ft.; tstd. S.W.; reperf. 6,032-40 ft.; will attempt sqze. job; 5½-in. csg. 6,040 ft.; acd. with 500 gal.; swbd. some oil; S.G.; installed flow valves and arng. blow with gas; old T.D. 6,044 ft.; T.D. 6,036 ft.
Holcomb & Thomason No. 1 Bohn, Cov Sur. Comp.; 238 B.P.D.; ¼-in. ck.; T.P 100 lbs.; C.P. 900 lbs.; 5-in. csg. 6,057 ft.; T.D. 6,091 ft.
Holcomb & Thomason No. 1 Bramlett, 245 ft. S line, 20-ac. lse., 400 ft. E line, Gentry Sur. Set 5¾-in. csg. 6,064 ft.; circulated with oil and swbg. to test; T.D. 6,082 ft.; perf. 6,052 ft.; swbd. some oil; cmtd. off bttm.; installed flow valves; comp.; 101 B.P. D.; open tbg.; input press. 385 lbs.
Holcomb & Thomason No. 1-C Henderson, R. Bennington Sur. R.U.
Hollandsworth Drlg. Co. No. 1 Hill, 15-ac. tr., Smith Sur. Drlg. L. 5,885 ft.
Ohio Oil Co. No. 4 Moseley, J. P. Francis Sur. Drlg. L. 4,900 ft.
Phillips Pet. Co. No. 2 Benefield, J. Hanks Sur. R.U.
Phillips Pet. Co. No. 2 Denton, Coy Sur. Set 7-in. csg. 6,149 ft.; T.D. 6,166 ft.
Phillips Pet. Co. No. 1 Jackson, Hanks Sur. Set 7-in. csg. 6,156 ft.; T.D. 6,170 ft. comp.; 225 B.P.D.; ¾-in. ck.; T.P. 400 lbs.; C.P. 1,100 lbs.; perf. 6,062-74 ft.
Shell Pet. Corp. No. 4 Schluter, Smith Sur. T.D. 6,045 ft.; set 5-in. csg. 6,-040 ft.
Union Prod. Co. No. 9 Hutchinson, Coy Sur. T.D. 6,126 ft.; set 7-in. csg. 6,-082 ft.

Panola County

Texas Co. No. 1 Claude Adams, T. Cox Sur. Top lower Marine 7,792 ft.; drlg. hd. sh. 9,143 ft.

Sabine County

Pet. Heat & Power Co. No. 1 Jasper State Bank, McDonald Sur. T.D. 2,506 ft., sd.; S.D.W.O.
H. R. Smith No. 1 Brooks hrs., Isaac Low Sur. Spd.

Shelby County

Center Oil Co. No. 1 Windham, A. H. English Sur. T.D. 3,422 ft.; set 6⅝-in. csg. tstg.
Mallard & Locke No. 1 W. E. Roller Est., Sullins Sur. Drlg. 5,756 ft.
Porter Oil Co. No. 1 Pickering Lbr. Co., C. E. Henry Sur. T.D. 5,065 ft.; S.I.
W. A. Reddit No. 2 Pickering Lbr. Co., P. J. Loggins Sur. Set 7-in. csg. 2,920 ft.; T.D. 4,420 ft.; drlg. plug.

WEST TEXAS WILDCATS

Andrews County

Fuhrman Pet. No. 1 G. O. Ashton, sec. 12, Blk. A-42, P.S.L. Sur. Loc.
Olson Drlg. Co. No. 1 Lockhart-Brown, 5 mi. W of south end of Fuhrman pool. Swbg. 4,584 ft.

Cochran County

Devonian-Honolulu-Cascade No. 1-C-8 Duggan, sec 8, Oldham C.S.L. Sur. Comp.; 278 B.O.P.D.
Texas Co. No. 1 D. S. Wright, Lge. 115, Lab. 23, Potter Co. Sch. Lds. Drlg. 385 ft.

Coke County

Barnett Pet. Co. No. 1 J. R. Mims, sec. 39, Blk. W, T.&P. Sur. Rng. 2-in. 5,051 ft.

Crane County

Gulf Oil Corp. No. 4 McKnight, sec 3, Blk. B-21, P.S.L. Sur. Cg. 6,060 ft.
Gulf Oil Co. No. 2-B State-Lassiter, University Sur., Blk. 30, sec. 27. R.U.
Texas Co. No. 1-G Univ., sec. 7, Blk. 30, Univ. Sur. Drlg. 1,660 ft.

Crockett County

R. H. Henderson No. 1 University, Univ. Sur., Blk. 14, sec. 18. D.&A. 1,595 ft.
Short & Gillette No. 1 J. W. Owens, Jose Zunegas Sur. S.D.O. 1,845 ft.

Culberson County

Harry J. W. Niehaus No. 1 fee, Blk. 109, sec. 13, P.S.L. Sur. 1,800-ft. test. S.D. 2,500 ft.
Quito Oil Co. No. 1 Cameron Lbr. Co., sec. 24, Blk. 81, P.S.L. Sur. S.D.R. 945 ft.

Dickens County

Bond D. Jones No. 1 Ford et al, I.&G.N. Sur. Drlg. 650 ft.

Ector County

Landreth Oil No. 1-P Scarbauer, sec. 11, Blk. A, P.S.L. Sur. Drlg. 3,630 ft.
Sinclair Prairie No. 3-A Johnson, sec. 37, Blk. 43, T.&P. Sur. 7-in. 4,010 ft.
Sinclair Prairie No. 2-B P. Moss, sec. 40, Blk. 44, T.&P. Sur. Drlg. 1,670 ft. last report.
Stogner et al No. 1 Hendrick, sec. 4, Blk. 43, T.&P. Sur. S.D.O. 4,329 ft.

El Paso County

Tri-State Oil Co. No. 1 Kinkel. Fsg. 3,571 ft.

Floyd County

Mills Bennett No. 1 T. Montgomery, F. J. Latham Sur., 6 mi. S of Floydada. Fsg. 5,960 ft. last report.

Gaines County

Osage Drlg. Co. No. 1 B. E. Miller, sec. 281, Blk. G, W.T.R.R. Sur. Drlg. 77 ft.
J. T. Perryman, Jr., No. 1 C. H. Doak, D.&W. Sur., Blk. H, sec. 43. P.B. 5,050 ft.; W.O.C.
Riddle & Warr No. 1 J. B. Brown et al, sec. 26, Blk. G, C.&M.R.R. Sur. Cg. 5,490 ft.

Garza County

Gulf Oil Corp. No. 1 Swanson, sec. 25, Blk. 2, H.&G.N. Sur. Cg. 6,767 ft.

Hockley County

Gulf Oil Corp. No. 1 Mallett Ld. & Cattle Co., sec. 6, Blk. X, P.S.L. Sur. P.B. 5,035 ft.; tstg.
Gulf Oil Co. No. 2 Mallett, Lge. 34, Labor 25. Drlg. 3,110 ft.
Sid W. Richardson No. 2 Slaughter, Lge. 39, Labor 58, Maverich Sur. Drlg. 4,083 ft.
Skelly Oil Co. No. 1 Elwood Est., Howard C.S.L. Sur., Lge. 15. Drlg. 4,398 ft.

Howard County

Anderson & Prichard No. 1 H. Hyman Est., sec. 85, Blk. 29, W.&N.W. Sur. Loc.
Lockhart Pet. Corp. No. 2 Robert Scott, W.&N.W. Sur., Blk. 29, sec. 86. Prep. shoot 3,068 ft.
W. B. Powell, Trustee, No. 1 Guitar Trust, Blk. A, sec. 17, Bauer & Cockrell Sur. Drlg. 2,007 ft.

Hudspeth County

Haymon Krupp Oil & Ld. Co. No. 1 Thaxton, SE¼ sec. 34, Blk. 74, Twp. 6. U.R. 4,650 ft.
Haymon Krupp No. 1 Briggs, sec. 24, Blk 73, Twp. 7, T.&P. Sur. Drlg. 4,305 ft.

Jeff Davis County

Joiner Oil Corp. No. 1 Jones-Coffield. S.D. 3,742 ft.

Lynn County

John L. Baldridge No. 1 Alma Lbr. Co., sec. 151, H.E.&W.T. Sur. S.D. 4,450 ft.

Martin County

W. D. Anderson No. 1 J. R. Vance, sec. 9, Blk. 36, T.&P. Sur. U.R. 3,764 ft.
T. G. Shaw No. 1 H. H. Wilkerson, sec. 35, Blk. A, Bauer & Cockrell Sur. Spd.

Menard County

C. D. Haggerty No. 1 Callon, sec. 36, Jim Franz Sur. U.R. 1,270 ft.

Pecos County

Ed Falney No. 1 Trees, sec. 63, Blk. 8, H.&G.N. Sur. Reblg. drk.; S.D. 2,055 ft.
J. N. Gregory et al No. 1 Humble-O'Niell, H.&G.N. Sur., Blk. 10, sec. 74. Fsg. 360 ft.
J. D. Kugle, Jr., No. 1 H. L. Cordz, sec. 101, Blk. 8, H.&G.N. Sur. Drlg. 1,200 ft.
Magnolia Pet. Co. No. 1 McKee. P.B. 6,197 ft.; P.B. 6,180 ft.; fsg. 6,167 ft.
E R.. Minshall et al No. 1 Haynie, sec. 28, Blk. 146, T.&St.L. Sur. Drlg. 2,829 ft.
S. Thompson No. 1 Elsinore Cattle Co., sec. 54, Blk. D, G.C.&S.F. Sur. Drlg. 7,225 ft.
Union Oil & Mining Co. No. 1 First Natl. Bnk. of Ft. Stockton, sec. 6, Blk. 9, H.&G.N. Sur. Drlg. 1,620 ft.

Reeves County

Frankley & Rice No. 1 W. A. Tunstill, sec. 10, Blk. 56, T.&P. Sur. M.I.M.
Ohio Oil Co. No. 1 Papham, sec. 54, T.&P. Sur. Drlg. by tools 2,380 ft.

Runnels County

Homer Price No. 1 Beddo, sec. 51, Thompson Casey Sur. Bailing 3,603 ft.

Scurry County

Coffield & Guthrie No. 1 E. E. Spears et al, sec. 130, Blk. 97, H.&T.C. Sur. S.D. 2,615 ft.
Gursham-Hunter No. 1 C. M. Wellborn, sec. 142, Blk. 25, H.&T.C. Sur. Spd.
Robinson Drlg. Co. No. 1 Martin, sec. 147, H.&T.C. Sur. P.B. 2,500 ft.; S.D.

Sterling County

J. W. Sward No. 1 Brennand, sec. 107, Blk. 2, H.&T.C. Sur. S.D.R. 2,555 ft.
W.F.W. Oil Co. et al No. 1 R. W. Foster, sec. 9, Blk. 13, S.P.R.R. Sur. S.D.O. 2,400 ft.

Stonewall County

Bert Fields No. 1 J. M. Lee, J. E. Pierson Sur. D.&A. 4,202 ft.
General Crude Oil Co. No. 1 J. D. Smith, sec. 371, Blk. 2, H.&T.C. Sur., 12 mi. N Rotan. Drlg. 4,762 ft.
Percy Jones et al No. 1 fee, Austin & Williams Sur. 348, sec. 2. D.&A. 3,584 ft.
E. C. Lawson No. 1 Ada Pumphrey, Eli Chandlers Sur. Drlg. 1,832 ft.
Swanson & Parriott No. 1 H. T. Carlisle, sec. 293, Blk. D, H.&T.C. Sur. S.O. 5,169-72 ft.; flw. by hds.

Terrell County

Schermerhorn Oil No. 1 H. P. Allison, sec. 22, Blk. B-2, C.C.S.D. & R.G.N.G. Sur. 2,500-ft. test. Drlg. 300 ft.

Tom Green County

Spinner No. 1 Reed, Mason Ferry Ranch. Sur. S.D. 4,495 ft.
J. B. Watson No. 1 Llano, C.S.L. Sur., sec. 16. 500-ft. test. Drlg. 115 ft. last report.

Ward County

M. J. Delaney No. 1 J. E. Cooper, H.&T.C. Sur. Tstg. 2,092 ft. (last report).
J. E. Fitzpatrick et al No. 1 F. K. Dyer, sec. 135, Blk. 34, H.&T.C. Sur. S.D.O 5,085 ft.
Peerless O. & G. No. 1 F. M. White, sec. 36, Blk. 1, H.&T.C. Sur. Drlg. 70 ft.
John Poindexter No. 1 V. Meyers, sec. 17, Blk. 32, H.&T.C. Sur. Drk.
S. J. Rixford No. 1 W. B. Crump, sec 2, Blk. 34, H.&T.C. Sur. Drlg. 2,572 ft.
O. E. Schkode No. 1 Boogher, sec. 1. Blk. 32, H.&T.C. Sur. Comp.; 21 B.O.P.D.

Winkler County

J. R. Sharp No. 1 Sharp-Crume, sec. 7, Blk. B-2, P.S.L. Sur. C.&P.
J. R. Sharp No. 2 Sharp-Crume, sec. 7, Blk. B-2, P.S.L. Sur. Loc.

Yoakum County

R. H. Gill No. 1 S. J. Doxon, sec. 611, Blk. D, Gibson Sur. Rng. 7-in. 5,000 ft.
Gulf Oil No. 1 Lucy K. Moore, sec. 897, Blk. D. Drlg. 4,750 ft.
Heimerich & Payne No. 1 S. O'Dowd, sec. 896, Blk. D, J. H. Gibson Sur. S.I. 5,035 ft.
Magnolia Pet. Co. No. 1 Lynn, sec. 770. Loc.
Phillips Pet. No. 1 W. A. O'Brien, sec. 442. Set csg. 298 ft.

E. C. TEXAS WILDCATS

Anderson County

J. G. Mayo et al No. 1 Royall & Davey, L. McClowd Sur., 12 mi. E of Palestine. D.&A. 4,298 ft.

Angelina County

K. L. McHenery No. 1 L. Henderson, Wm. White Sur., 1 mi. E of Hamlet. D.& A. 6,501 ft.

Dallas County

Plaza Oil Co. No. 1 Davidson Marchants Sur., 1 mi. NW of Seagoville. S.D. 3,528 ft.

Falls County

M. H. Hayes No. 1 A. Garrett, J. M. Sanches Sur., 2 mi. NE of Lott field. Bailing 1,328 ft.

Franklin County

V. A. Hughes No. 1 W. E. Haydon, W. Landrum Sur., 1 mi. SE of Hagansport. Drlg. 3,523 ft.

Grayson County

Epenhauser No. 1 J. M. Rogers, L. Kelly Sur., 1½ mi. NE of Whitesboro. Drk.
Mildred Oil Co. No. 1 L. C. Neatherly, Chas. Quillers Sur., 1 mi. S of Collinsville. Drlg. 2,100 ft.

Gregg County

Humble-Gulf No. 1 Porter Horton, H. G. Hudson Sur., 3½ mi. SW of Longview, 7,500-ft. test. R.U.

Henderson County

Lignite Pet. Corp. No. 1 I. P. Tidemore, P. Tumlinson Sur., 4 mi. S of Malakoff. S.D. 3,400 ft.
McElreath & Suggett No. 1 T. L. Dean, C. M. Walters Sur., 1 mi. W of Athens. Loc.
Peyton Bros. No. 2 Carter. Drk.

Houston County

Humble O. & R. Co. No. 1 Daily & Taylor, J. G. Thompson Sur. S.I. 5,894 ft.
Humble Oil & Ref. Co. No. 1 C. C. Hill, J. L. LaReviere Sur., Navarro Crossing field. 9⅝-in. 1,741 ft.; T.D. 2,500 ft.
Sun Oil Co. No. 1 R. S. and H. H. Daily, J. G. Thompson Sur., 3 mi. SE of Navarro Crossing. Tstg. 5,893 ft.; 25 B.O.P.D.

Kaufman County

Sam Knoerr No. 1 J. B. Hunter, P. Walker Sur., 5 mi. S of Terrell. M.I.M.
W. S. McGee No. 1 Pritchett, J. Hendricks Sur., 7 mi. W of Mabank. Drlg. 1,000 ft.

Leon County

Lone Star Gasoline No. 2 G. W. Lee, R. Hunter Sur., 5 mi. SE of Buffalo gas area. W.O.C. 5,730 ft.; S.O.

Limestone County

J. S. Cosden, Jr., No. 1 J. J. Bower, J. Breeding Sur., NW part of county. Drlg. 1,098 ft.
A. H. Larver No. 1 C. E. Herrod, Eli Davis Sur., 5 mi. S of Grossbeck. S.D. O. 3,842 ft.

McLennan County

Lisle Steele No. 1 C. H. Cherry, M. Martinez Sur., 4½ mi. SE of Waco. S.D. 945 ft.
Russell & Thompson No. 1 L. L. Phillips, C. O. Campo Sur., 4 mi. S of Waco. S.D.W.O. 1,070 ft.

Nacogdoches County

C. W. Voyles et al No. 1 M. E. Rider, O. W. Randall Sur., 3 mi. E of Caro. Drlg. 2,445 ft.

Navarro County

B. T. Fearis No. 1 W. Montgomery, I. Redding Sur., 7 mi. S of Kerns. Drlg. plug 103 ft.

Red River County

Daniels et al No. 1 J. J. Gaston, J. Guest Sur., 2 mi. S of Detroit. S.D. 500 ft.
Walters et al No. 1 Phamplin, W. Moore Sur., 3 mi. SE of Kanawha in NW part of county. S.D. 555 ft.
C. E. Whitehead No. 1 R. H. Ringwald, A. Moore Sur., 1 mi. NW of Manchester. Drlg. 430 ft.

Smith County

Combest et al No. 1 Dora Kendall; J. Williams Sur., 1¼ mi. SW of Jamestown. S.D.R. 3,210 ft.

Upshur County

E. J. Dupree No. 1 W. A. Lawrence, R. Polly Sur., 4 mi. S of Gilmer. D.&A. 4,308 ft.

NORTH TEXAS WILDCATS

Archer County

Fain-McGaha No. 1 McCrory G, sec. 44, A.T.N.C.L. Sur. 6⅝-in. csg. 4,720 ft.; O.S. 4,727-58 ft.; W.O.C.
Helmerich & Payne et al No. 2 L. F. Wilson, Blk. 25, A.T.N.C.L. Sur. Testing at 5,105-16 ft.
Louis Sikes et al No. 1 Ford, T. M. Cecil Sur. A-982. 4,500-ft. test; Tstd. S.W.; S.D.O.
Mazda Oil Co. No. 1 Finley A. Nail A-325. S.S.O. 4,298-4,303 ft.; 6⅝-in. 4,290 ft.; drlg. plug.
Reno Oil Co. No. 10 H. Wilmut A, sec. 4, S.P.R.R. Sur. A-1044. S.S.O. 3,760-66 ft.; 6⅝-in. 3,750 ft.; trtd. 3,000 gal.; flwd. 80 bbls. in 18 hrs.; tstg.

Baylor County

J. F. Morrisey Co. No. 1 Jno. White Est., sec. 2483, T.E.&L. Sur. 10-in. 100 ft.; W.O.R.
Riddels, Pipes & Holcomb No. 1 W. H. Nichols, Jr., sec. 117, B.B.B.&C. Sur. A-85. Loc.
Wilcox O. & G. Co. No. 1 W. H. Portwood, sec. 3144, T.E.&L. Sur. Drlg. 5,460 ft.

Clay County

L. T. Burns No. 1 Lyles, S.A.U.A. Sur. No. 403. Drlg. 1,600 ft.
Walter Gant No. 1 Bryant Edwards, S. C. Beldon Sur. A-12, 6,000-ft. test. Drlg. 5,930 ft.
Wood Pet. & Roy. Corp. No. 1 I. H. Kempner, Blk. 44, Bosque Co. Sch. Ld. Sur. A-10. S.D.O. 2,330 ft.

Cooke County

Sinclair Prairie Oil Co. No. 1 Mrs. J. D. Putnam, T. W. Ward Sur. No. A-1089. Drlg. 2,518 ft.

Denton County

A. T. Campbell No. 1 W. C. Kimbrough, R. Howard Sur. No. A-543. Loc.

Foard County

Wynne & Ed S. Smith No. 1 Worsham, J. M. Clay Sur. Drlg. 5,119 ft.

Hardeman County

Hillsboro Oil Co. No. 1 Thomas, sec. 314, W.&N.W. Sur. Spudded and set surf. csg.

Jack County

Noah Daves No. 1 K. D. Baker, sec. 2709 T.E.&L. Sur. 4,000-ft. test; S.D.O. 1,930 ft.
Harper Pet. Co. 1 Mary E. Norman. A. Pearson Sur. A-1304. S.D.O.

Knox County

Roeser Pendleton and I.T.I.O. No. 1 G. H. Beavers, sec. 151, H.&T.C. Sur. Drlg. 2,100 ft.

Montague County

H. H. Powell No. 1 Arch Durham, W. J. Wagoner Sur. A-936. S.D. 822 ft.
J. W. Sorrell et al No. 1 J. E. Walthall, Sam H. Smith Sur. A-662. S.D. 3,777 ft.

Wichita County

Continental Oil Co. No. 1 State Ins. Asylum, Blk. 1, Cherokee Co. Sch. Ld. 6⅝-in. 5,075 ft.; SL 5,076-5,128 ft.; drlg. plug; flwd. 90 bbls. in 3 hrs.; trtd. with 8,000 gal. acd.; est. 150 B.P.D.
Hanlon Buchanan, Inc., No. 1 Fassett & Tuttle-D, sec. 23, Cherokee Co. Sch. Ld. S.D. 5,450 ft.
Madden & Goldsmith No. 1 Jackson, Blk. 20, Denton Co. Sch. Lds. S.D.O. 4,505 ft.; 6⅝-in. 2,742 ft.; perf. csg. 2,630-41 ft.; H.F. oil; testing.

Wilbarger County

Lloyd Brown No. 1 W. T. Waggoner, sec. 27, H.&T.C. Sur., Blk. 6. W.O.R.
Consolidated Oil Co. No. 1 Ancell, sec. 35, H.&T.C. Sur. Loc.
Phillips No. 26 Waggoner NN, sec. 42, H.&T.C. Sur., Blk. 4. D.S.T. lime 3,746-65 ft.; 1,600 ft. oil 30 min.; 5⅞-in. csg. 3,746 ft.; drlg. plug and tstg.

Young County

Horwitz & Oldom No. 1 C. J. Taach B, sec 248, T.E.&L. Sur. Drlg. 3,605 ft.

(Continued on Next Page)

Canadian Fields

(Continued from Page 234)

Model Oils Meeting

Shareholders of Model Oils, Ltd., of Calgary elected the following officers: President and managing director, W. C. Fisher; vice president, W. R. MacArthur; secretary-treasurer, T. W. McKee; directors, C. W. Barber, W. Grant MacKay, Harry Groves. The company owns three crude producers in North Turner Valley and has an interest in the two Model-Spooner-Reward producers in the west flank crude area.

Purchase Widney Well

In the old Central Turner Valley area, Widney Petroleums, Ltd., has sold its No. 1 well, a small naphtha producer, with some other assets, to McDougall-Segur Exploration Co. of Calgary for $12,000. Widney No. 1 is in LSD 11, section 12-20-3w5.

Conservation Board Plans

W. F. Knode, chairman of the Gas Conservation Board, has announced that all producing wells in Turner Valley will be given an official production test on a scientific basis, an entirely new method of determining potentials being employed. All operators have been notified to register with the board. Steps to conserve gas will be taken as soon as possible. The original conservation plan was to shut in naphtha wells responsible for heavy gas wastage and restrict gas production as far as possible to the quantity necessary for market requirements, drilling fuel and other uses.

East Side Drilling

On the New Valley structure northeast of Turner Valley, McLeod Oil Co. No. 1, LSD 4, section 6-21-2w5, is cleaning cavings and running casing to bottom at 8,462 feet. About 2,000 feet of oil standing in the hole will be swabbed; and unless a good well develops, drilling will be resumed.

On the Calling Valley structure, Sentinel Oil Co. No. 1, LSD 1, section 8-20-2w5, is resuming from 6,800 feet with 8-inch hole.

Tests in the Foothills

On the Brazeau structure, in the foothills west of Edmonton, Home Oil Co. No. 1, LSD 16, section 7-43-17w4, is resuming after running 10-inch casing to bottom at 4,520 feet.

On the Ram River structure, Ram River Oils No. 1, Tawadina Creek, is waiting for completion of road to move in drilling equipment.

On the Birch Ridge structure, Elbow Oils No. 1, LSD 11, section 35-22-5w5, bottoming at 5,520 feet, has tested a number of potential horizons. A fair amount of gas was indicated in the upper sands when casing and formation were perforated; but it was a dry gas, and there were little indications of commercial oil production. It is not expected to drill deeper, though the test did not reach the Madison.

On the Kootenay dome, Roxana Petroleums No. 1, section 8-24-7w5, is below 3,900 feet, about 800 feet in the Devonian limestone.

On the Highwood-Sinclair structure southwest of Turner Valley, Green Valley Oils No. 1 Banner, LSD 6, section 34-17-3w5, is below 6,027 feet and entering a softer lime after drilling very hard formation. It is more than 660 feet in the Madison limestone.

South End Test

South and west of the proven Turner

Valley field, J. & J. Syndicate of Calgary has spotted its No. 1 test in LSD 8, section 12-16-3w5. Location is immediately west of the old Christie well, which encountered encouraging shows of light crude in horizons above the Madison limestone. Combination equipment is being moved to location, and the test will start with cable tools and later change to rotary. Production is looked for around 2,900 feet. Location is about 3 miles west and 5 miles south of Anglo-Canadian No. 2 in South Turner Valley and about 2 miles east and 10 miles south of Green Valley Oils No. 1 Banner on the north end of the Highwood-Sinclair structure. Pollard Syndicate of Calgary has located its No. 1 test about 2 miles farther north and 1 mile west in SE quarter section 23-16-3w5.

Saskatchewan Oil Show

In the Lloydminster gas field, in western Saskatchewan, Colony Oil & Gas Co. No. 3, about 3 miles southeast of Lloydminster, has developed strong showings of heavy crude. The well was finished to the gas sand about two years ago and has since been shut in. When it was reopened recently, considerable crude was found in the hole. It bailed over 50 bbls. in about a day, and after standing overnight the oil came up to the old level. Cavings are being cleaned out and a definite production test will be made.

Revive Ontario Pools

Good results are being secured in the revival of some of the old shallow oil areas of southwestern Ontario. In Lambton County, Robert Hargin recently purchased for around $1,700 the Thomas Josh farm on the Plympton-Enniskillen town line 2 miles north of Copleston. A well on the property, off production for 17 years, was cleaned out and refitted, and started pumping more than 50 bbls. a day. The well was originally drilled about 1888, and after flush production at that time settled to about 80 bbls. a day which was maintained for a considerable period.

W. J. Hussey has leased from the town of Petrolia a municipally owned industrial acreage for purposes of experimenting with a number of oil production methods. Mr. Hussey is planning to drill an 8-inch hole to the oil sand, the town to receive one-eighth royalty on any production developed. The deal includes a one-year option to purchase at $70 an acre. If the experiment secures substantial additional oil recovery from the sand, it will probably be extended through the various Ontario shallow fields.

Bothwell Pool

As a result of cleaning out and reconditioning old shallow wells, there has been considerable increase in crude production in the Bothwell pool in the northeast portion of Kent County. The earliest crude discoveries in the Bothwell area were made south of the town about 1866, but the present pool was opened to the west about 1896. There are now about 112 operating wells in the field, in addition to a number standing idle. Wells are pumped by the jerker rod method with a central pumping plant. In the isolated areas steam units are used; but most of the wells are operated by electric motors with automatic shutoffs. Deliveries are made by team or motor truck to the loading station at Bothwell or a private station about 1 mile west, the crude being transported by tankcars to the Imperial refinery at Sarnia, which takes production.

Border Fields

In the Del Bonita-Twin River area, area, south of Lethbridge, Pat Adams is cementing off the old Nordon Corp. well on the Twin River structure. Equipment will be moved to NW quarter section 7-1-21w4, for a new test of the Del Bonita structure. Production for drilling fuel will be taken from Terminal Oil Co. No. 1 on the same structure, which got showings of oil and gas on top of the Madison limestone. Adams No. 1 is 3,000 feet due west of the Terminal well.

RANGER (CENTRAL TEXAS) DISTRICT

Brown County

Hightower O. & R. Co. No. 1 Payne, sec. 31, H.&T.C. Sur. Drlg. 100 ft.

Callahan County

Cooper, Weeks & Hughes No. 1 C. D. Straley, 660 ft. from W L, 1,880 ft. from N L, sec. 370, Geo. W. Denton Sur. Ordovician test. S.D.O. 4,450 ft.

Dobbs Oil Co. No. 1 Finley, sec. 75, Bayland Orphans Home Ld. Drlg. 228 ft.

J. H. Howell No. 1 E. I. Vestal, 1,149 ft. E line, 1,000 ft. N line, Jesse Dyson Sur., 2 mi. NE Cross Plains. Drlg. 2,932 ft.

J. C. Jackson et al No. 1 Thompson, 2 mi. S of Eula, sec. 30, B.B.B.&C. Sur. S.D. 1,645 ft.

Petroleum Drlg. Co. No. 1 Cook & Jordan, 760 ft. from E L, 1,838 ft. from N L, sec. 350, Geo. Hancock Sur. Ordovician. Tstg. 4,468 ft.

Coleman County

Anzac Oil Corp. No. 1 Burk, A. Williams Sur. Drlg. 2,205 ft.

R. M. Coleman No. 1 Ford, A. S. Lipscomb Sur. Drlg. 1,015 ft.

F. L. and E. R. Cooper No. 1 W. R. Stockard, 330 ft. from NL, 330 ft. from WL, N½ SE¼ sec. 23. T.&N.O. Sur. Rotary to 3,650 ft.; R.U.R.

Garrett Oil Co. No. 1 W. S. Smith et al. 4 mi. SE of Coleman, J. Thiele Sur. Lowering csg. 2,155 ft.; H.F.W.; est. 2,000,000 ft. gas.

Bob Murray No. 1 Dibrell, H. Kigan Sur., near Camp Colorado. Set csg. 2,670 ft.

Eastland County

Dobbs Oil Co. No. 1 Greer, J. E. Hardy Sur., Ellenburger test. S.D. 800 ft.

Dorothy Oil Co. No. 1 Mrs. J. L. Johnson, 1,000 ft. from S line, 1,080 from W line, E½ SW¼ sec. 29-4 H&TC Sur. S.D. 1,488 ft.; est. 2,000,000 ft. gas.

Hayner, Reaves & Hose No. 1 P. L. Larkin, 3 mi. NW Rising Star, 912 ft. from W line, 546 ft. from S line, NW¼. sec. 40-2, E.T.R.R. Sur. S.D.O.; H.F.W. 3,098 ft.

Erath County

McGee Dev. Co. No. 1 Till Robinson, Wm. Ashworth Sur., 2 mi. SE of Desdemona. Drlg. 1,295 ft.; last report.

Fisher County

Forest Dev. Corp. & Daube No. 1 L. G. Bennett, 660 ft. from N and E lines, sec. 51-3, H.&T.C. Sur. Rotary to 4,500 ft.; 3 mi. SW of Rotan. Swbg., est. 30 bbls.; tstg. 3,699 ft.; S.I.; may pmp.

Owens-Snebold & A. C. Varner No. 1 J. H. Millsap, 3,500-ft. wildcat, 2 mi NW McCaulley, 330 SL 330 WL, sec 61-2, H.&T.C. Sur. S.D.O. 530 ft.

Haskell County

Algord Oil Co. No. 1 J. F. Jones, 330 ft. from S and W lines, E. T. Roche Sur. No. 4, Abst. 525. Loc.

Fain-McGaha Oil Corp. No. 1 T. G. Hendrick, C W½ sec. 104, Indianola Ry. Sur. C.O. to lower csg. 2,862 ft.

Jones County

Dunigan Bros. and Fred Hyer No. 1 Gaither, 4½ mi. N of Anson, sec. 38, B.B.B.&C. Sur. U.R. 2,768 ft.

R. B. Farris No. 1 Chas. Donohoo, 220 ft. from S and E lines, N½ sec. 5, B.B.B. &C. Sur. U.R. 1,830 ft.

Grisham-Hunter Corp. No. 2 E. D. Appling, 1,140 ft. fr. E L, 1,208 ft. S L, NW¼ sec. 32, B.B.B.&C. Sur. Loc.

S. C. Herring No. 1 B. L. Ellis, 330 ft. fr. N and E lines, SE¼ sec. 8-15, T.&P. Sur. Loc.

Humble No. 1 Riley Horton, 330 ft. from N line, 330 ft. from E line, sec. 40-18, T.&P. Sur. Comp.; 376 B.O.P.D.

Humble No. 1 Dallas Joint Stock Land Bank, 990 ft. from W line, 4,458 ft. from S line of M. Fragosa Sur. 267. U.R. 2,760 ft.

Iron Mountain No. 1 D. J. Herbst, 5 mi. E Hamlin, 330 ft. from N and E Sub 18, Austin Williams Sur. 339. Set 10-in. 2,245 ft.; wtr. 2,900-05 ft.; H.F.W. 3,150 ft.; D.&A. 4,310 ft.

Chas. J. Kleiner No. 1 Mrs. A. E. Carlson, 333 ft. from S and E lines, NW¼ sec. 19-3, H.&T.C. Sur. D.&A. 3,431 ft.

N. H. Martin & Son No. 1 J. W. Wyatt, 150 fr. S L, 316 fr. E L, W 102 ac. in sec. 4-14, T.&P. Sur. S.D. 1,662 ft.

L. H. Pearson No. 1 B. L. Hood, 1,100 ft. from S and W lines, W. T. Evans Sur. No. 1. D.&A. 2,126 ft.

S. B. Roberts Co. No. 1 Roy E. Prichard, 205 ft. fr. S L, 2,428 fr. E L, J. E. Cockrell Subdiv. 2, G. Martinez Sur. 195. Loc.

Shaheen Oil Co. No. 1 T. B. McCoy, 595 ft. from N line, 660 ft. from E line, sec. 1-16, T.&P. Sur. S.D. 2,098 ft.

W. L. Snoddy & C. C. Dodson No. 1 C. L. Steffens et al, 220 ft. from S and W lines SW¼ NE¼ sec. 32-15, T.&P. Sur. Tstg. 1,910 ft.; est. 200 B.O.P.D.

Ungren & Frazier No. 1 W. E. Fellows, 990 ft. from N line, 330 ft. from E line, S½ sec. 25-15, T.&P. Sur. D.&A. 2,555 ft.

Nolan County

Oyster, Harkrider et al No. 1 J. H. Withers, C SW¼ sec. 65-21, T.&P. Sur. Wildcat to drill 4,000 ft.; drlg. 2,760 ft.

Shackelford County

Joe DeGrazier No. 1 Harbough, E cen. part of county, sec. 1,563, T.E.&L. Sur. 4,500-ft. test. S.D.O. 3,171 ft.

Forest Dev. & Heinerich & Payne No. 1 T. G. Hendrick, C sec. 1, A.B.&M. Sur. Show gas and oil cored 4,838-45 ft.; T.D. 5,056 ft.; set 7-in. to 4,818 ft. to test showing 4,819-37 ft. in Marble Falls; last report.

Fortex Oil Co. No. 1 Davis, sec. 23, Blk. 12, T.&P. Sur. Drlg. 1,115 ft.

R. H. Gordon & Frank Pethybridge No. 1 C. B. Snyder, 330 ft. fr. N and E lines, sec. 38, L.A.L. Sur., 4,500-ft. test. Loc.

J. G. Hammond No. 1 Coker, 1,620 ft. from S line and 1,020 ft. from W line, sec. 159, B.B.B.&C. Sur. U.R. 8-in. 2,380 ft.; drlg. 3,328 ft.

D. W. Power No. 1 Black Ranch, C SE 80 ac. of NE½ sec. 391, T.E.&L. Sur., Ellenburger test.

Stephens County

Lone Star No. 1 E. H. Brooks, 400 ft. from S and W lines, NE 200 ac. of sec. 54-7, T.&P. Sur. Drlg. 1,840 ft.

Lone Star No. 1 J. S. McKee, 660 ft. from N line, 660 ft. from W line, sec. 41-7, T.&P. Sur. Drlg. 3,376 ft.

G. Willard Rich No. 1 J. W. Andrews, 330 ft. W line, 450 ft. S line, NW¼ sec. 39-7, T.&P. Sur. Flowed est. 200 bbls. in 4 hrs.; tbg. to tst. 3,668 ft.

Taylor County

A. R. Forester et al No. 1 Frederickson, sec. 1, Guadalupe Co. Sch. Lds. Sur. No. 120. Loc.

Lewis Production No. 1 L. Henslee, 330 ft. from E L of 234-ac. tract in J. A. Nabors Sur. No. 10 and sec. 27-17, T.&P. Sur., 4 mi. E of Merkel. U.R. 2,570 ft.

Throckmorton County

Beacon O. & R. Co. No. 1 Hawes Est., sec. 979, T.E.&L. Sur. Drlg. 3,655 ft.

Crawford & Brown No. 1 J. A. Matthews, Narcissa Thompson Sur. Est 10,000,000 ft. gas daily at 774 ft.

Jones & Stasney No. 1 C. T. Brockman, 330 ft. S line, 330 E line sec. 95 Comanche Indian Sur. T.D. 4,706½ ft.; est. 1,000 to 1,500 B.P.D.

Mariand-Drake No. 1 Dickie Bros., center T.E.&L. Sur. 2226. Swbg. to test 3,970 ft.

White & Duncan No. 1 Raynolds Cattle Co., 330 ft. from S and W lines, NE¼ sec. 83, Comanche Indian Reservation. Fsg. 2,230 ft.

Henry Zweifel No. 1 J. H. Lee, 4 mi. NE of Woodson, 930 ft. from E line and 2,011 ft. from S line of J. A. George Sur. S.D. 3,924 ft.; may plug.

STANDARD OIL CO. OF CALIFORNIA AND UNION OIL CO.
Crude oil prices at the well effective June 22, 1936

Gravity—	Signal Hill (Long Beach)	Seal Beach	Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda-Brea Canyon	Athens-Rosecrans	Dominguez	Elwood Terrace	Torrance	Richfield	Whittier E. Coyote (La Habra)	Montebello	W. Coyote Hills	Santa Fe Springs	Mountain View	Elk Hills Buena Vista Hills Midway-Sunset Lakeview Area	Lost Hills	Coalinga	Wheeler Ridge	Kettleman Hills	Santa Paula*	Orcutt*
14-14.9	$.80	$.79	$.74	$.78	$.79	$.80	$.76	...	...	...	$.80	$.76	$.76	$.77	$.78	...	...	$.70	$.70	$.70	...	...	$.70	...
15-15.9	.80	.79	.74	.78	.79	.80	.76	...	...	...	.80	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.70	...
16-16.9	.80	.79	.74	.78	.79	.80	.76	...	...	...	.80	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.70	$.70
17-17.9	.80	.79	.74	.78	.81	.80	.76	...	...	...	.80	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.71	.70
18-18.9	.80	.79	.74	.78	.84	.80	.78	...	...	...	.82	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.73	.73
19-19.9	.82	.79	.74	.82	.87	.84	.81	...	...	...	.85	.76	.78	.77	.78	...	$.70	.74	.74	.71	$.70	...	.75	.74
20-20.9	.85	.79	.74	.85	.90	.88	.84	...	...	...	.88	.78	.82	.77	.80	...	.70	.78	.78	.72	.70	...	.77	.77
21-21.9	.88	.79	.74	.89	.93	.93	.88	...	...	...	.91	.80	.85	.77	.84	$.78	.73	.82	.82	.74	.70	...	.79	.80
22-22.9	.92	.82	.74	.92	.96	.98	.92	...	...	...	.93	.84	.89	.79	.88	.78	.77	.87	.86	.78	.72	...	.82	.83
23-23.9	.95	.86	.77	.96	.99	1.02	.96	$.84	$.79	...	.96	.88	.93	.82	.92	.78	.80	.92	.90	.82	.76	...	.85	.86
24-24.9	.99	.91	.80	1.00	1.02	1.06	.99	.88	.81	...	.99	.91	.96	.85	.96	.82	.84	.97	.94	.86	.79	...	.87	.88
25-25.9	1.03	.95	.82	1.03	1.05	1.11	1.03	.93	.83	...	1.02	.95	...	.89	.99	.86	.88	1.01	.98	.90	.83	...	.90	.91
26-26.9	1.06	1.00	.85	1.07	1.09	1.16	1.06	.98	.86	...	1.05	.98	...	.92	1.03	.90	.91	1.06	1.02	...	...	...	.92	.93
27-27.9	1.10	1.05	.88	1.11	1.12	...	1.10	1.03	.88	...	...	1.02	...	.96	1.06	.95	.95	1.10	1.06	...	...	...	.95	...
28-28.9	1.14	1.10	.90	1.14	1.15	...	1.14	1.07	.90	...	...	1.06	...	.99	1.10	.99	.99	1.15	1.10	...	...	...	.97	...
29-29.9	1.17	1.15	.93	1.18	1.18	F.O.B.	1.17	1.12	.93	...	...	1.09	...	1.03	1.14	1.03	1.02	1.20	1.14	...	...	...	.99	...
30-30.9	1.21	1.19	.95	1.22	1.21	our	1.21	1.17	.95	F.O.B.	...	...	...	1.07	1.17	1.08	1.06	1.25	1.18	...	...	...	1.01	...
31-31.9	...	...	...	...	1.24	Pipe	1.24	1.22	.97	Ship	...	...	...	1.11	1.21	1.12	1.09	1.29	...	...	...	...	...	...
32-32.9	...	...	...	...	1.27	Line	1.27	1.27	1.00	...	...	...	...	1.14	1.25	1.16	1.13	1.34	...	...	...	...	...	...
33-33.9	...	...	...	...	...	...	...	1.32	...	$1.28	...	...	...	1.18	1.28	1.20	1.17	1.38	...	...	...	$1.19	...	...
34-34.9	...	...	...	...	...	...	...	1.37	...	1.32	...	...	...	1.22	1.32	1.25	1.20	...	...	...	...	1.23	...	...
35-35.9	...	...	...	...	...	...	...	1.42	...	1.35	...	...	...	1.25	...	1.29	...	...	...	...	...	1.27	...	...
36-36.9	...	...	...	...	...	...	...	1.46	...	1.39	...	...	...	1.29	...	1.33	...	...	...	...	...	1.31	...	...
37-37.9	...	...	...	...	...	...	...	1.51	...	1.43	...	...	...	1.32	...	1.37	...	...	...	...	...	1.35	...	...
38-38.9	...	...	...	...	...	...	...	1.56	...	...	...	...	...	1.36	...	1.42	...	...	...	...	...	1.39	...	...
39-39.9	...	...	...	...	...	...	...	1.61	...	...	...	...	...	1.40	...	...	...	...	...	...	...	1.43	...	...
40-40.9	...	...	...	...	...	...	...	1.66	...	...	...	...	...	1.43	...	...	...	...	...	...	...	...	...	...

Newhall, McKittrick, Kern River, Kern Front and Round Mountain, 70 cents for all grades. *Posted by Union Oil Co. Same company's Brea Canyon schedule stops at $1.14 for 28 degrees and over, and Belridge and Lost Hills schedule stops at $1.32 for 37 degrees and over. By Standard Oil Co., effective October 15: El Segundo, 14 to 18.9 degrees, 80 cents; 19-19.9, 82 cents; 20-20.9, 85 cents; 21-21.9, 88 cents; 22-22.9, 92 cents; 23-23.9, 95 cents; 24-24.9, 99 cents; 25-25.9, $1.03; 26-26.9, $1.06; 27-27.9, $1.10; 28-28.9, $1.14; 29-29.9, $1.17; 30-30.9, $1.21. Wilmington, 14 to 16.9, 75 cents; 17-17.9, 77 cents; 18-18.9, 79 cents; from 19 degrees upward, prices same as Signal Hill.

Central West Fields

(Continued from Page 229)

West & McPharon are fishing at 260 feet on the Milo Saul lease. In Pleasant Township, section 33, Jones & Keiner are attempting to clean their No. 16 S. D. Sours, and plan to drill to the Green sand. In Clinton Township, Sun Oil Co. No. 1 Tiffin Business University, section 7, is drilling at 300 feet. The Sun Oil Co., in the same township and section, has staked a location on the F. Zeis tract.

ILLINOIS

CENTRALIA, Ill., July 25.—Forty-one oil wells and seven failures were completed in the Central Illinois fields the past week. Twenty-five of the new oil wells were in the Centralia pool, the remaining 16 being scattered in several other pools. Sixty-three new operations were reported.

Completions of the week, with their sand records and initial daily production, were:

In the Clinton County sector of the Centralia pool, Adams Oil & Gas Co. No. 3 Felton, SW NE NW section 1-1n-1w, had Bethel formation at 1,338 feet, and pumped 62 bbls. of oil. A. B. Potter No. 1 Hanseman Estate, SE SE SW SE section 1-1n-1w, total depth 1,384 feet, temporarily abandoned. Samedan Oil Corp. No. 1 Buehler, SE NE SW section 1-1n-1w, Bethel sand 1,305-25 feet, pumped 40 bbls. of oil and 85 bbls. of water. Shell Petroleum Corp. No. 4 Hanseman, SW NW SE section 1-1n-1w, sand 1,309-42 feet, pumped 100 bbls. of oil. Same company's No. 2 Lippert, SE SE NW section 1-1n-1w, sand 1,310-47 feet, pumped 166 bbls. of oil. George S. Anderson No. 1 Kassel, Second Home Terrace Addition, section 12-1n-1w, sand 1,368-82 feet, pumped 30 bbls. of oil. Ray Brown No. 2 Fortney, College Hill Addition, section 12-1n-1w, sand 1,364-89 feet, pumped 90 bbls. of oil. J. P. Gray and others No. 1 Ferrell, Second Home Terrace Addition, section 12-1n-1w, sand 1,357-75 feet, pumped 65 bbls. of oil.

W. C. McBride, Inc., No. 1 Allison, NW SE NE section 12-1n-1w, sand 1,362½-84 feet, pumped 140 bbls. of oil and 10 bbls. of water. Adams Oil & Gas Co. No. 1 Klein, NE SE NW SE section 13-1n-1w, sand 1,367-79 feet, shot, pumped 49 bbls. of oil. Halverson Oil Co. No. 1 Marshall, Pullen Subdivision, Western Addition, section 13-1n-1w, sand 1,362-80 feet, pumped 172 bbls. of oil. American Seismograph Co. No. 1 Foutch, Finney Heights, section 24-1n-1w, sand 1,370-83 feet, pumped 168 bbls. of oil and 72 bbls. of water. Bell Oil & Gas Co. No. 1 Kennedy, Finney Heights, section 24-1n-1w, sand 1,364-81 feet, pumped 250 bbls. of oil. Same company's No. 1 Schilling, Finney Heights, section 24-1n-1w, sand 1,371-82 feet, pumped 100 bbls. of oil. Boyce & Welch No. 1 Murgin, Finney Heights, sand 1,378-90 feet, pumped 80 bbls. of oil. Crancher and others No. 1 Millmaker, Pullen Heights, section 24-1n-1w, sand 1,368-90 feet, pumped 80 bbls. of oil. O. L. Ray and others No. 3 H.B.&L., Finney Heights, section 24-1n-1w, sand 1,370-82 feet, pumped 260 bbls. of oil. Roberts & Smith No. 1 Towe, Finney Heights, section 24-1n-1w, sand 1,363-76 feet, pumped 85 bbls. of oil. E. M. Smith No. 1 Guetzler, Finney Heights, section 24-1n-1w, sand 1,366-76 feet, pumped 150 bbls. of oil.

Marion County

In the Marion County side of the Centralia pool, F. H. & M. Oil Co. No. 1 Ougg, Westview Place, section 7-1n-1e, abandoned location. W. F. Lacey No. 1 Kohl, SE SW SW section 18-1n-1e, sand 1,360-80 feet, pumped 125 bbls. of oil. Capital City Development Co. No. 1 Hubbard, Jones Addition, section 19-1n-1e, sand 1,382-90 feet, pumped 15 bbls. of oil. Sparta Oil Co. No. 1 Kalberkamp, Jones and others addition, section 19-1n-1e, sand 1,391-98 feet, pumped 10 bbls. of oil and 3 bbls. of water. Kaelin & Hite and others No. 1 Draege, Bronson Place, section 30-1n-1e, location abandoned. Cole & Simmel No. 1 Grode, Jones and others addition, section 19-1n-1e, sand 1,373-85 feet, pumped 168 bbls. of oil. Robin H. Brians Trustee No. 2 Nattier, NW NE SE SE section 29-4n-1e, Patoka pool, sand 1,268 feet, pumped 200 bbls. of oil.

In Wayne County, Clsne pool, Pure Oil Co. No. 1 Schuylerfearn, C W half NE SW section 22-1n-7e, total depth 3,200 feet, dry and abandoned. Same company's No. 3 Clay, C E half NE NW section 27-1n-7e, pay 3,112-18 feet, flowed 283 bbls. of oil naturally through tubing.

In Clay County, Clay City pool, Pure Oil Co. No. 4 Tetrick A, C W half SW NE section 9-2n-8e, sand 2,965-3,032½ feet, acidized 438 bbls. of oil in 24 hours. Same company's No. 1 Bates, C W half NW NE section 16-2n-8e, pay 3,001-27 feet, flowed 797 bbls. of oil through tubing. Pure Oil Co. No. 2 Moseley, C W half NE SW section 16-2n-8, sand 2,978-3,048 feet, flowed 467 bbls. of oil. Same operator's No. 1 Bunn B, C E half NE NE section 17-2n-8e, pay 3,000½-50 feet, acidized, flowed 677 bbls. of oil. Pure Oil Co. No. 1 Duff, C E half NE SE section 32-3n-8e, pay 2,943-3,015 feet, acidized, flowed 861 bbls. of oil. Pure Oil Co. No. 2 Moseley, C W half SW NW section 33-3n-8e, pay 2,940-48 feet, flowed 609 bbls. of oil.

In Jefferson County, Dix pool, Carter Oil Co. No. 2 Dobbs, NE SW NW section 10-1s-2e, sand 1,951 feet, shot, pumped 204 bbls. of oil and 3 bbls. of water.

Fayette County

In Fayette County, Beecher City pool, Carter Oil Co. No. 3 Logsdon, C E half NW NE section 15-8n-3e, sand 1,487-1,508 feet, shot, pumped 366 bbls. of oil. Same company's No. 4 Logsdon, C W half NE NE section 15-8n-3e, sand 1,498-1,507 feet, pumped 90 bbls. of oil. J. T. Babcock and others No. 2 Rhodes, NW SW SE section 27-8n-3e, sand 1,584-1,600 feet, pumped 100 bbls. of oil and 15 bbls. of water.

In Saline County, C. F. Bolton and others No. 1 Beagle, NW NW NE section 13-9s-7e, an old wildcat, dry and abandoned at 2,601 feet, total depth.

In Crawford County, Warren Hastings and others No. 1 Athey, C N half NE NE section 18-8n-12w, wildcat, total depth 2,949 feet, dry and abandoned.

In Clay County, Olson pool, Olson Drilling Co. No. 1 Madding, C S half NE NW section 12-2n-7e, pay 3,064-83 feet, acidized, flowed 550 bbls. of oil through tubing. Ohio Oil Co. No. 1 Hardy, NW SE SE section 9-3n-7e, Flora pool, pay 2,958-67 feet, flowed 459 bbls. of oil.

In Wayne County, Gulf Refining Co. No. 1 Wilson, C E half NE NE section 30-1s-5e, wildcat, total depth 3,250 feet, dry and abandoned.

In Edgar County, A. M. Meyers No. 1 Brinkerhoff, C SE SE section 26-13n-13w, wildcat, total depth 550 feet, junked hole, abandoned.

In Effingham County, Penn-Illinois Oil & Gas Co. No. 1 Niehoff, NW NE NW section 24-8n-4e, wildcat, total depth 2,700 feet, dry and abandoned.

In Richland County, J. V. Wicklund No. 1 McCauley, NE SW NW section 7-2n-9e, wildcat, McCloskey pay 2,980-86½ feet, acidized, flowed 1,053 bbls. of oil. This pool opener is in southwestern Richland County and about 5 miles east of the south end of the Clay City pool.

Clinton County

In Clinton County, Centralia area, Vickers and others No. 1 fee, Second Heights Addition, section 12-1n-1w, sand 1,365-70 feet, pumped 35 bbls. of oil. Deaton Harris and others No. 1 Ward, Finney Heights, section 24-1n-1w, sand 1,365-87 feet, pumped 200 bbls. of oil. Santa Fe Oil & Gas Co. No. 4 Robbin, SE NW SE section 5-1n-3w, Bartelso pool, Cypress 983 feet, shot, pumped 65 bbls. of oil. Fairhope Oil Co. No. 1 Halstenburg, Pullen Subdivision No. 2, section 13-1n-1w, Benoist 1,349-72 feet, pumped 250 bbls. of oil.

In Fayette County, Minerva Oil Co. No. 1 Vercruyssee, NW SE SE section 4-7n-3e, temporarily abandoned at 1,512 feet.

In Richland County, Shamrock Oil Co. No. 1 Alvord, SW SE NE section 33-3n-9e, wildcat location, abandoned.

In Schuyler County, Fagerburg and others No. 1 Quinn, SE NE NW section 27-2n-1w, wildcat, dry and abandoned at 850 feet.

Some Indiana Tests

Frank Damron No. 1 Gramelspacker, NE cor. section 18-6s-3w, wildcat in Greene County, Indiana, McClosky sand 865-928 feet, dry and abandoned.

Haney & Hollingsworth No. 1 Bergenroth, SE section 2-6s-4w, Spencer County, Indiana, McClosky sand 797-843 feet, dry and abandoned.

A. S. Reed No. 1 Ogle, NE NE SW section 35-8n-10w, Sullivan County, Indiana, total depth 821 feet, shot, 2,000,000 feet of gas.

New Indiana operations: Murphy Oil Co. No. 2 Stewart, SW NE NW section 26-1n-9w, Pike County, location. O. A. Thayer and others No. 1 Snyder and others, NE NW SW section 34-7n-9w, Sullivan County, location. Carter Oil Co. No. 1 Fenton, C S half NW NE section 16-10n-10w, Vigo County, location.

Illinois First Reports

Sixty-four new operations were reported in Illinois the past week. They were:

In Clay County, Pure Oil Co. No. 2 Smith A, C W half SW SE section 9-2n-8e, location. Same company's No. 1 Smith A, CW half NW SE section 9-2n-8e, location. Pure Oil Co. No. 2 Bunn B, C W half NE NE section 17-2n-8e, location. Pure Oil Co. No. 4 Moseley A, C E half NE SW section 16-2n-8e, derrick corners. Same operator's No. 3 Bunn, C W half SW NE section 16-2n-8e, location. Pure Oil Co. No. 1 Margaret Bunn, C E half SE NE section 17-2n-8e, rigging up rotary. Pure Oil Co. No. 1 Moseley, C E half NW NE section 32-3n-8e, cellar. Same company's No. 2 Smith, C W half NW SW section 33-3n-8e, derrick. Wiser Oil Co. No. 2 Daly, NE NW NE section 12-2n-7e, derrick. Pure Oil Co. No. 1 Ullom, C W half SE SW section 16-2n-8e, derrick corners.

In Jefferson County, Carter Oil Co. No. 2 Foster, NW cor. section 10-1s-2e, location. Nollem-Benoist No. 1 Darnell, SE SW SE section 24-4s-2e, clearing location.

In Fayette County, Minerva Oil Co. No. 4 Tish, SE NW SE section 33-8n-3e, pits. Same company's No. 3 Tish, NE NW SE section 33-8n-3e, total depth 1,591 feet, set 7-inch pipe at 1,570 feet, waiting. W. B. Johnson Drilling Co. No. 2 Goetting, NW NE NW section 32-8n-3e, building rotary rig. Merritt & Apperson No. 1 Botterbusch, NW SW SW SW section 29-8n-3e, rigging up rotary. Barney Whisenant and others No. 1 Lilly, SE SE SW SE section 16-8n-3e, total depth 1,597 feet, fishing. Carter Oil Co. No. 1 Holman, SE NE NE section 10-8n-3e, location. Same company's No. 4 Wood, NE SE SW section 15-8n-3e, location. Carter Oil Co. No. 2 Main, NW SW SE section 15-8n-3e, location. Carter Oil Co. No. 1 Howell, SE SW NW section 15-8n-3e, location. Simon, Woods and others No. 1 Robinson, C NW NW section 2-7n-2e, drilling 1,224 feet. Hayes, Miller and others No. 1 Thull, SE SW SE section 14-8n-1e, rigging up machine.

In Wayne County, H. H. Weinert No. 2 Twist, SE NW SW section 33-2s-7e, location. Pure Oil Co. No. 2 Schiele, C W half NW NE section 27-1n-7e, cellar.

In Richland County, Mammoth No. 2 Yount, SE SE NE section 29-3n-9e, cellar. Pure Oil Co. No. 2 McFarland and others, SW SE SW section 17-3n-9e, drilling 925 feet. Wicklund No. 1 Van Matre, SE SE SW section 7-2n-9e, derrick corners. Fortney Oil & Gas Co. No. 2 Miller, SW SW NW section 26-4n-10e, derrick.

In Marion County, J. Garfield Buell No. 1 Huff, SW cor. section 14-2n-2e, wildcat, location. Texas Co. No. 1 Reed, NW NE NW section 5-1n-2e, building rotary rig. Texas Co. No. 2 Canull, NE SW SE section 31-2n-2e, location. Same company's No. 4 Williams, NE SE SE section 31-2n-2e, location. Company's No. 3 Williams, SE SW SW section 32-2n-2e, location. Texas Co. No. 1 Williams, C W half W half SW SW section 32-2n-2e, pits. Company's No. 2 Williams, C E half SE SE section 31-2n-2e, rigging up rotary. Harris & Broddus No. 1 Welch, SE SE SE NW section 2-1n-1e, wildcat, drilling 600 feet. Brian's Trustees No. 3 Nattier, NW SE SE section 29-4n-1e, rigging up machine. Adams Oil & Gas Co. No. 1 Cox, SE NE SE section 29-4n-1e, total depth 1,295 feet, drill pipe stuck. W. F. Lacey No. 1 Doe, Crosby Addition, Lot 4, Block 1, section 19-1n-1e, spudded. Joe Waltner No. 1 Fisher, Lot 24, Block 8, Jones and others Addition, section 19-1n-1e, drilling 1,350 feet.

In Clinton County, M. & K. Oil Co. No. 1 Kesner, NE NW NE section 10-3n-2w, location. Shell Petroleum Corp. No. 4-A Criley, NW SE SE section 35-2n-1w, drilling 1,310 feet. Same company's No. 9 Allison, SE NW SE section 12-1n-1w, drilling 334 feet. Huddleston & Gwin No. 1 Vickers, Lot 22, Block 3, Second Heights Addition, section 12-1n-1w, drilling 500 feet. Redwing No. 1 Doe, NE NE SE section 12-1n-1w, drilling 150 feet. Gardenhire Brothers No. 1 Beachman, Block 2, Lot 23, Pullen Heights, section 24-1n-1w, rigging up machine. Adams Oil & Gas Co. No. 2-A Copple, NE SW SE section 35-2n-1w, spudded. Iroquois Oil & Gas Co. No. 1 Winte, Lot 11, Block 4, Pullen Heights, section 24-1n-1w, set 8-inch casing at 800 feet. Joe Waltner No. 1 Patchin, Lot 24, Block 7, Finney Addition, section 24-1n-1w, coring 1,364 feet. Roberts Brothers No. 1 Hozar, Lot 8, Block W, Finney Heights, section 24-1n-1w, rigging up rotary. Adams Oil & Gas Co. No. 1 Kaelin, SE section 12-1n-1w, location. W. C. McBride No. 3 Allison, SW SE NE section 12-1n-1w, drilling 550 feet. Same operator's No. 3 Carson, NW NE SE section 35-2n-1w, moving in machine. W. C. McBride No. 2 Carson, SW NE SE section 35-2n-1w, drilling 1,190 feet. Taylor Drilling Co. No. 1 Meyers, NW SW SE section 5-3n-1w, wildcat, location.

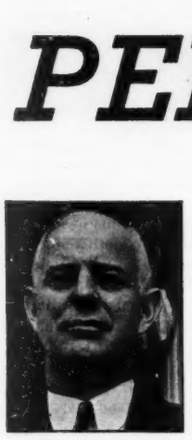
In Montgomery County, Baker & Martin No. 1 Yowell, SE NE SE section 4-8n-5w, drilling 500 feet.

In Edgar County, A. M. Meyers No. 1-A Brinkerhoff, C SE SE section 26-13n-3w, skidded machine.

In Clark County, Stipes and others No. 1 Boyer, SE NE SW section 29-12-13w, drilling 70 feet.

In Morgan County, Alexander Oil Co. No. 1 Gray, C E half NW NE section 36-15-9w, location, wildcat. Waverly Oil Co. No. 1 Doe, C E half E half SE section 33-14n-8w, wildcat, total depth 475 feet, shut down for repairs.

PERSONAL



WILLIAM B. HEROY has joined the Pilgrim Exploration Company as vice president and chief geologist and will have his headquarters in Houston, Tex., where he will devote his entire attention to Pilgrim's oil interests in Louisiana, Texas, and Arkansas which are held jointly with Fohs Oil Company. Mr. Heroy was associated with the Consolidated Oil Corporation for 18 years, the last seven of which were as chief geologist and manager of the foreign exploration department. He had spent 12 years with the U. S. Geological Survey. He is a past president of the American Association of Petroleum Geologists.

DEAN W. R. WOOLRICH, head of the engineering department of the University of Texas, addressed the Mid-Continent Section of the American Society of Mechanical Engineers in Tulsa last Friday. Dean Woolrich was formerly dean of engineering in the University of Tennessee and an active figure in connection with the Tennessee Valley Authority.

J. F. O'DONOHOE, president of the Petroleum Producers Company of Wichita Falls, Tex., was one of the hosts when the company held its annual picnic recently at Lake Wichita. He was assisted by C. S. HOLDERBY, superintendent of operations in the North Texas district; DAN H. RUBSAN, head of the land department; H. J. RIZAN, bookkeeper, and FRED SEHMANN, secretary-treasurer.

CHARLES H. HIGHTOWER, geophysicist, accompanied by his family, left this week for New Orleans, La., where he will reside for the next several months.

O. M. WEBB, for more than seven years manager of the International Refining Company plant of the Texas Company at Sunburst, Mont., has resigned from the Oil Conservation Board of Montana. He has been promoted to assistant manager of the Lockport refinery of the Texas Company, near Chicago, the second largest Texaco plant.

MISS MARIE SNYDER, granddaughter of the late James Edward O'Neill, who was president of the old Prairie Oil & Gas Company and resided in Independence, Kans., was married Wednesday, July 20, in Cannes France, to DR. ERNESTO VALLENILLA-DIAZ of Caracas, Venezuela, in the Church of Our Lady of Pines. She is a daughter of DR. R. GARFIELD SNYDER, of New York. Mr. O'Neill, who took up his residence in Cannes after leaving the United States, died in that city in 1931.

W. A. DELANEY, Ada, Okla., producer, left for Hot Springs, Ark., where he planned to do some fishing.

H. B. SIMCOX, general superintendent of production for the Continental Oil Company, is en route to Honolulu to spend several weeks' vacation.

E. A. SHOWERS, of Showers & Moncrief, drilling contractors and independent operators, is in California, accompanied by MRS. SHOWERS. They are on an extended vacation trip.

FRED C. SHIELDS, district geologist of the Magnolia Petroleum Company, Houston, Tex., has resigned to become associated with Harper & Turner, independent operators in Oklahoma City. He formerly was with the latter company.

ALFRED F. SMISSEN, who was Cuban delegate to the Petroleum Exposition in Tulsa last May and now is connected with the French Development Corporation, Oklahoma City, will leave for Mexico Saturday of this week to visit Mexico City, Tampico, and the Mexican oil fields. He expects to see Vicente Cortes Herrera, who headed the Mexican delegation to the oil show.

J. S. LEACH, manager of sales in the southern division for the Texas Company, has been elected a vice president. He will continue his headquarters in Houston, Tex. C. B. BARRETT, formerly Houston district manager, has been made assistant manager of the southern territory, and C. N. BROOKS, formerly assistant district manager, has been made district manager. C. E. OLMSTED, of New York, president of the Texas Company (California), was elected a vice president of the Texas Company last week.

Do You Remember?

From The Oil and Gas Journal Files

25 YEARS AGO

The long-hoped-for dollar mark in the price of Kansas and Oklahoma crude was closely approached when a 5-cent advance lifted the price to 98 cents per barrel. At the same time North Texas hit the coveted mark with a $1 price in Electra, Henrietta and Corsicana.

The ouster suit by the state of Texas against the Magnolia Petroleum Company and various others involving penalties of over $100,000,000 has been withdrawn by the defendants paying the state $500,000. The case did not come to trial.

20 YEARS AGO

W. W. Dalrymple, for many years prominently identified with the petroleum industry, dies in Oblong, Ill. He was born in 1848.

A sand at 125-40 feet in Waggoner County, Oklahoma, yields a 15-barrel production in a well in section 25-18-18.

A line fight in section 36-16-21, Franklin County, Kansas, has resulted in the drilling of eight wells within a radius of 200 feet.

Promoters are doing a land office business exchanging pretty but worthless oil-stock certificates for Liberty bonds.

10 YEARS AGO

Francis Eugene Hurley, vice president of the Ohio Oil Company, dies in Findlay, Ohio.

The Roxana Petroleum Corporation No. 4 Hendrick-A, in section 45, Block 26, Winkler County, Texas, flows 45,050 barrels in 24 hours. It flowed 2,475 barrels the first hour. The oil has a gravity of 27 degrees.

Empire Gas & Fuel Company has a showing of oil in a wildcat in section 8-21-35, Lea County, New Mexico, and it looks like a commercial well.

The United States Navy abandons Teapot dome, Wyoming, as an oil reserve, with the verdict that it is "of no use to the navy."

W. ROSS KEYTE, consultant in petroleum geology and engineering in Colorado Springs, Colo., has moved to offices in the Bennett Building, that city.

EMMA QUINN, of the geophysical department of the Standard Oil Company of Louisiana, Shreveport, is spending a three weeks' vacation in St. Louis, Mo.

LEROY M. HEGBOM, treasurer of the Mene Grande Oil Company, Maracaibo, Venezuela, has terminated his visit in the United States and sailed from New York July 22 on the return trip to La Guaira.

E. V. WHITWELL, formerly chief geologist with the Carter Oil Company, Tulsa, has joined the Oliphant Oil Corporation. He will be in charge of operations in the company's Shreveport, La., office.

LORD JOHN CADMAN, chairman of Anglo-Iranian Oil Company Ltd., and LADY CADMAN gave their younger daughter, HON. MARY CADMAN, in marriage in London recently to LIEUT.-COL. W. P. A. BRADSHAW, D.S.O., Scots Guards.

NORMAN E. MAXWELL, of Titusville, Pa., production engineer for the Cities Service Oil Company, has been transferred to Bartlesville, Okla. Mr. Maxwell has been a member of the production advisory committee of the Pennsylvania Grade Crude Oil Association.

A. J. FLINT, of London, managing director of the Redeventza (British) Oil Company, is in Portugal, carrying on negotiations for the long-term exclusive refining license recently granted Soc. Concessionaire pour le Raffinage du Petrole en Portugal, a new firm in which "Redeventza" S.A. has a major interest.

PARAGRAPHS

DR. HAROLD J. COOK, geologist and authority on paleontology, is carrying on geological work in eastern Wyoming. The Union Oil Company of California is drilling its important test on the Agate anticline, first mapped by Doctor Cook.

R. C. ROBERTS, manager of the Arkansas City refinery of the Shell Petroleum Corporation, recently closed, has been assigned to duty at East Chicago, Ind., where he will serve temporarily as plant manager. T. J. ELDER, manager of the East Chicago refinery, has gone to Houston, Tex., to replace the manager of the refinery there, who is ill.

J. WARREN SMITH, formerly production superintendent for the Gulf Oil Corporation in Jackson and Tillman counties, Oklahoma, has been transferred to Indianapolis, Ind., which is to be the center of the company's activities in Illinois, Indiana, Kentucky, Ohio, West Virginia, and Michigan. CECIL ALBERTS, land man at Wichita, Kans., and WILBUR GRIFFITH, seismograph operator at Oklahoma City, also have been sent to Indianapolis.

C. P. SLOAN, in the accounting department of the Stanolind Pipe Line Company, has returned to his home in Tulsa following a trip to Bradford, Pa., with MRS. SLOAN.

L. F. SONNTAG, of Great Falls, Mont., with MRS. SONNTAG, is spending a vacation in Denver, Colo. Mr. Sonntag is an independent operator in the Pondera field of Montana.

RICHARD L. SAUNDERS has been chosen secretary of the Texas Corporation, New York, succeeding the late E. M. Crone. Mr. Saunders began his service with the company in 1909 as a voucher clerk in the sales department of the New York offices after leaving high school in Jersey City, N. J. He was assistant general sales manager at the time of his latest promotion.

GENE GERMANY, Dallas, Tex., independent oil operator, left last week for the International Jamboree of Lions Clubs in San Francisco. Mr. Germany is retiring president of the Dallas Lions Club.

JOHN STEVEN HURT was born July 9 in El Centro, Colombia, South America, to MR. and MRS. R. M. HURT. Mrs. Hurt formerly was Paula Conry, daughter of J. J. CONRY, president of the Carter Oil Company, Tulsa. She was born in Rumania.

J. FLETCHER FARRELL, general superintendent of the Sinclair Refining Company, was among New York officials of the company who went to Wellsville, N. Y., last week to help supervise the work of extinguishing a fire originating in the wax plant. The value of the destroyed units was about $1,000,000, a company statement said.

S. F. PRATT, European manager of the Pennsylvania Grade Crude Oil Association, will arrive this week in New York for a two months' visit.

E. McCUNE, superintendent of the Sun Oil Company's land department in Fort Worth, Tex., has returned from Colorado where he and MRS. McCUNE spent their vacation.

R. R. McLACHLIN has been elected secretary-treasurer of Diversified Royalties, of which G. F. DETRICK is president, and in his new capacity will maintain offices in Los Angeles.

E. G. YONGBERG, formerly associated with the Shoreline Oil Company of Shreveport, La., has been named president of the Princeton Oil Corporation, recently organized to handle sales for the Lake Price Refineries, Inc.

W. E. HARRMANN, oriental representative of the Pennzoil Company has left Los Angeles for Manila, Yokohama, Kobe, Shanghai, Hongkong, Singapore, and other marketing areas in the East Indies, Australia and New Zealand.

CLAUDE D. FREEMAN and CHARLES D. FREEMAN, both of the Sun Oil Company's tax department in Fort Worth, Tex., left from Smith's Bluff, Tex., on the company's tanker, Western Sun, for Marcus Hook, Pa., a favorite vacation trip for Sun employees.

WILLIAM GROUNDWATER, director of transportation of the Union Oil Company, presided at the July meeting of the foreign commerce and shipping committee of the Los Angeles Chamber of Commerce, at which E. P. THOMAS, noted economist and president of the National Foreign Trade Council, discussed "World Trade Today."

Folk Were Forty-Niners

Frank A. Morgan, recently elected vice president of the Richfield Oil Corporation, Los Angeles, Calif., is a tall, rangy fellow, suggestive of the western mining country from which he came. He is a descendant of folks who went to California in the flaming days of '49. He has been in charge of Richfield's exploration work since the company was formed through consolidation of the original Richfield and Pan American organizations with the Rio Grande Oil Company in March, 1937. He will continue to manage the exploration department, which includes the land and lease, geological, and scouting divisions.

FRANK A. MORGAN

Mr. Morgan was born in Sonora, in the Mother Lode region of California, in 1898. He graduated in 1920 from the College of Mining and Geology of the University of California and began serving various groups as consulting geologist and petroleum engineer. In 1929 he joined the Rio Grande as chief geologist, and after the company had become a subsidiary of the Consolidated Oil Corporation he was made a director and vice president in charge of production for Rio Grande and vice president and director of the Reservoir Hill Gasoline Company. He was president of the Pacific Coast section of the American Association of Petroleum Geologists in 1933, and in 1935 he was chosen vice president of the national body. Mr. Morgan's friends say he has a genius for organization. With his wife, daughter, and two sons he resides in Beverly Hills.

J. ED ERWIN, executive vice president of the North Texas Oil and Gas Association, is on vacation at Corpus Christi, Tex. He will return to his offices in Wichita Falls about August 1.

G. A. URQUHART, of the Standard Oil Company of California, with offices in San Francisco, is spending his annual vacation in Southern California accompanied by MRS. URQUHART.

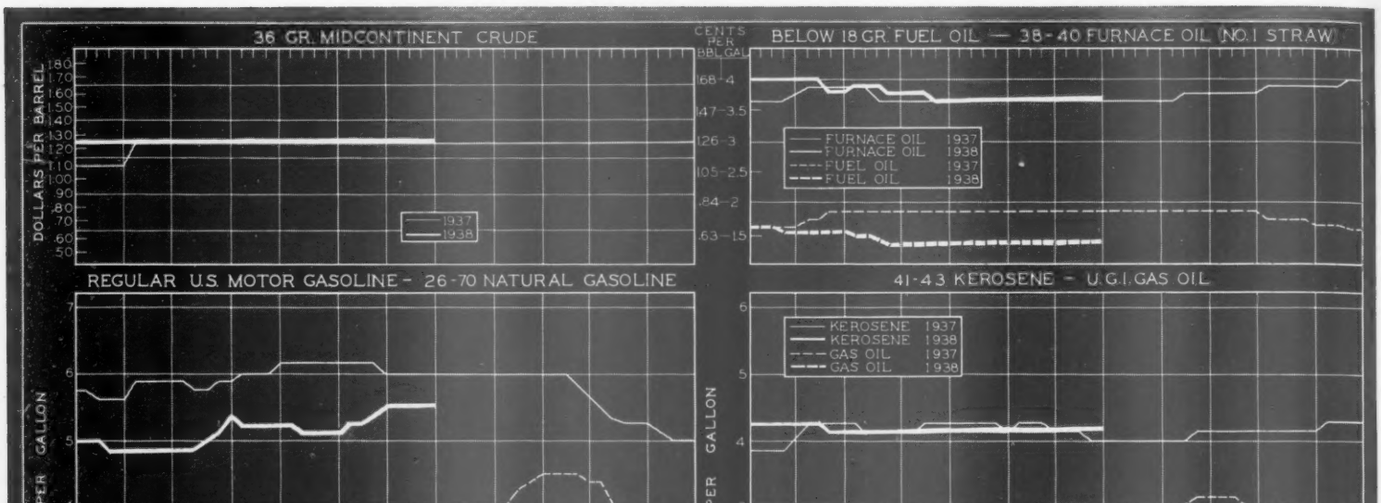
D. H. BOLIN, of Wichita Falls, Tex., large operator in the K.M.A. field of Wichita County, left last week for a month in Honolulu. He was accompanied by MRS. BOLIN and their children.

HAROLD J. WILKINS has returned to Mexico after a vacation in the United States. He is secretary and treasurer of Compania de Gas y Combustible Imperior S. A., a subsidiary of the Cities Service Company.

A. JACOBSEN, president of the Amerada Petroleum Corporation, and E. L. SHEA, executive vice president of the Tide Water Associated Oil Company, both of New York, are in the Southwest inspecting their respective company properties.

C. P. DUNBAR, of the Louisiana State Department of Conservation, New Orleans, will attend the meeting of the Interstate Oil Compact Commission in Colorado Springs, after which he and MRS. DUNBAR will start on a motor trip to the Pacific Coast.

D. E. BODINE, Kansas City, Mo., formerly in charge of operations at the Kansas City refinery of the Phillips Petroleum Company, has been named superintendent of the McPherson, Kans., plant of the Bay Refining Company, succeeding CLAUDE L. WITHERS, who resigned.



Representative Mid-Continent Quotations on Crude Oil and Refined Products, Basis Oklahoma (Group 3)

Natural Gasoline's Fast Rise Engages Market Interest in Group 3 Area

By T. F. SMILEY

Natural gasoline's swift flight to higher levels engaged the interest of market observers in the Group 3 area this week. The rise which began early in June has now added a full cent to the tankcar price. The 3 cents which 26-70 commanded this week is the high for the year. Incidentally, 3 cents was the low for 1937. The large manufacturers are just above the line at which they can begin to make a little profit. The market will have to do still better, however, to compensate for the abnormally low prices through which it dragged earlier in the year. Another cent and a half will have to be gained before the naturals will touch the point they reached last October.

Buying for Fall Requirements

The first buying of natural gasoline for fall motor fuel was seen in the past week. Purchases for this purpose were of modest size, but from this point on they should increase in volume till they attain their peak in late fall or early winter. The Texas price, trailing that in Oklahoma since last May, strengthened and the two were on almost even terms. This resulted from the fact that most of the shipments in the past week have been to Gulf Coast destinations, giving Texas manufacturers the advantage of a lower freight rate.

Refiners expressed confidence that conditions which had softened the gasoline market were of passing character and that an improved tone would be visible soon. Two reasons were offered for a fidgety market at a time when seasonal expansions was to be expected. One was afforded by material from Michigan and from small plants in Illinois looking for quick sale in the Chicago district, causing quotations to topple in that immediate area and injecting uneasiness in competitive territory. The other was appearance of gasoline which several southwestern refiners had withheld during the months of outrageously low prices. Its advent just when unwanted material was seeking outlets in the Chicago district had the effect of weakening a market already in need of bracing, although there was said to be no price-cutting.

It was believed the disturbance caused by necessitous offerings in the Chicago area would be of short duration and would be kept localized. The material released from plants in the Southwest was said to have been absorbed early this week. Observers expressed belief that the market probably had a more solid basis for summer growth now than it had before. Although the country's gasoline stocks are uncomfortably large and much higher than they were at this time last year, they have been falling at an encouraging rate and give promise of reaching an economic level before the season of heavy consumption closes.

Low-Octane Gasoline Scarce

Scarcity of low-octane gasoline was reported. Kansas refiners have been buying this grade in Oklahoma to fill the requirements of their own customers in Kansas. Tightness of this division of the market was ascribed to demands from the harvest field, along with the fact that the newer tractors are designed for a higher-quality fuel. Throughout agricultural regions of the Mississippi Valley generally the demand for oil products was reported to be surpassing expectations. One of the large integrated companies reported its gasoline sales at a new high, and other companies indicated similar business.

Bright stocks and neutrals were in a bad way, and there was difficulty in determining what the ruling prices were. Published quotations were little more than nominal, informed observers declared, and concessions were easy to get.

Heating oils were closely held, with ready demand for all the higher gravity domestic grades available. Prices were firm. Inconsequential changes from those of last week were reported. Wax was strong. Faint signs of improvement in heavy industrial fuel were noted.

Refined Oil Market Barometer

Gasoline has not developed the strength expected, and softness is reported in a few cases. Continued withdrawals from stocks, with more favorable motoring weather in some regions, should help to correct such market heaviness as exists. Natural gasoline is definitely on its seasonal ascent. Heating oils are in active demand. Little improvement is visible in the lubricant group.

MID-CONTINENT. Gasoline lacks vigor. Naturals strong. Heating oils firm. Lubricants weak.

EAST COAST. Fuel oils much stronger. Gasoline holding in spite of heavy rains.

GULF COAST. Gasoline, light fuels, and burner oils moving actively on contracts.

CALIFORNIA. Gasoline demand increasing, but prices unsettled. Fuel oil and diesels weak.

PENNSYLVANIA. Gasoline and naphtha off. Fuel oil up. Neutrals and bright stocks improving.

CHICAGO. Gasoline fairly active. Kerosene irregular. Domestic and industrial fuels steady.

Fuel Oil Gains Fresh Strength in New York; Gasoline Firm

By H. STANLEY NORMAN

NEW YORK, July 26.—New York terminal tankcar fuel oil prices were increased Monday by an eighth to a quarter of a cent per gallon on most grades by Standard Oil Co. of New Jersey. Diesel fuel oil for marine consumption was raised 10 cents per barrel to a new quotation of $1.75 per barrel. Light heating oil and No. 1 range oil were advanced an eighth of a cent to 4¾ cents per gallon, while medium and heavy distillate fuel, gas oil and shore plant diesel oil were raised a quarter of a cent to 4¼ cents per gallon. Industrial oil also was raised a quarter cent to a new price of 4 cents per gallon. Fuel oils have taken on new strength in New York during the past two weeks, but the advance of July 25 was the first since spring.

Incessant rains all last week brought a temporary halt to record-breaking motor fuel demand, but the potential business is unimpaired. Dealers looked upon the rain as a "bad break" in the weather, but remained cheerful over the total summer outlook. Hundreds of vacation trips were doubtless canceled or curtailed by rains.

The motor fuel market remained unchanged in New York with 65-octane gasoline available in tankcars at 6¾ to 7 cents per gallon. A bulk of material now moving, however, is bringing the top price of the range. New price wars have been visited upon several sections of the country, but the Northeast was free last week of further spreading of the scourge.

Outlook for the market structure over the remainder of the summer is held encouraging by close observers, primarily due to the strength displayed by Gulf Coast refiners. High octane gasoline is firm on the Gulf Coast at a range of 5¾ to 6 cents per gallon. Boat rates remain extremely low. Despite the low transportation cost, gasoline from the Gulf Coast is costing dealers in New York about 6¼ to 6⅜ cents per gallon and appears to be in no immediate danger of dipping below this range.

The reduction of 1,172,000 bbls. in motor fuel stocks for the week ended July 19 was particularly important to the trade when viewed in the light of the gain of 100,000 bbls. per day in runs to stills. There are many in the trade, however, who fear easing of restrictions on production and increase in refinery operations which will inevitably follow may have been premature. In the main, nevertheless, the pessimism prevailing in earlier stages of the summer has been alleviated and confidence is expressed in several quarters that state regulatory bodies have met and will continue to meet situations as they arise. There remains considerable work in the reduction of motor fuel stocks, but with anything like favorable motoring weather in August and September observers feel the goal of about 65,000,000 bbls. on September 30 may be attained this year.

Improvement in demand and price prospects for light fuel oils covered the entire range from kerosene down. Domestic heating oils and low diesel index materials were reported firm at 3½ cents per gallon on the Gulf Coast with refiners uninterested in movement at depreciated prices.

Kerosene is said to be fairly active and firm at 4 cents per gallon on the Gulf Coast which may have been partially responsible for the improved tone in the New York and other northeastern markets.

Burner shipments have recovered part of their decided slump during the last quarter of 1937 and the first three months of 1938 although the index is still only a little above 50 compared to last year. Building revival has played an important part in the burner shipment improvement during the past 30 days and is expected to continue until fall.

There is the additional factor in light fuel oil markets of exports which have held slightly above 1937 so far and give indications of further improvement in the next few months. Reports were current in New York last week that an exporter was inquiring for 2,000,000 bbls. of gas oil among Gulf Coast refiners for lifting during the remainder of 1938. Distributors are beginning to line up their fall and winter fuel oil requirements, sensing that the market has reached the low of the summer cycle and that further delay can bring nothing but higher refinery prices and possibly higher tanker charter rates. Boat owners have resisted further pressure on the tanker rates by tying up idle boats. Owners are reported unwilling to bring vessels back into service until current rates are stiffened in proportion to increased operating costs.

Industrial fuel oil was reported none too strong on the Gulf Coast, but price cutting was said to be less in evidence in the New York section. Buying of industrial fuels has been at an increased level during the past 10 days in New York, partially because of the desire on the part of dealers and their bankers to place their funds in commodities and partially due to the expected upturn in general business conditions in the last quarter.

Bunker C fuel oil was reported available on the Gulf Coast at a price range of 60 to 70 cents per barrel, depending on the gravity. The price of 95 cents on domestic Bunker C fuel oil was unchanged in New York harbor to the marine trade. Industrial oil for shore plant consumption is available in this territory at a range of 2½ to 3 cents with a diminishing volume of business at the lower figure.

Western Pennsylvania refiners enjoyed an upturn in demand for neutral oils last week. Orders against contracts were reported received at improved rates by most refiners. Furthermore, the inter-refinery market for neutral oils has improved and plants in a position to supply have advanced their prices about a half cent per gallon.

Some of the independent dealers in New York advanced their No. 2 fuel tankcar prices last week to 4¼ cents per gallon and kerosene to 4¾ cents. The advance by those participating was about a quarter of a cent per gallon. The price range, however, represents the level at which at least a part of the demand was previously supplied.

Socony-Vacuum Oil Co., Inc., lowered the Syracuse tankcar price on branded gasoline from 8.4 to 8.1 cents per gallon and the posted dealer tank-wagon price from 9.9 to 9.5 cents per gallon. The company also adjusted its Philadelphia tankcar price on branded motor fuel from 7¼ to 7 cents per gallon, meeting a local condition in that marketing territory.

Improvement shown in primary markets and more spirited demand from dealers for light fuel oils during the past two weeks have temporarily captured interest of the industry along the North Atlantic seaboard. Motor fuel markets continue strong and consumption is holding at a level which may, by the end of summer, offset the top-heavy stocks on hand at the start of the season.

A. P. I. Weekly Refinery Statistics

Week Ending July 23, 1938

	Capacity reporting (per cent)	Daily crude runs (bbls.)	Total gasoline stocks	Gas oil and fuel oil stocks
East Coast	100.0	488,000	21,442,000	12,860,000
Appalachian	88.4	103,000	3,218,000	1,164,000
Indiana, Illinois, and Kentucky	92.4	424,000	12,653,000	9,165,000
Oklahoma, Kansas, and Missouri	84.7	279,000	6,494,000	4,255,000
Inland Texas	56.6	149,000	2,095,000	1,832,000
Texas Gulf	95.7	725,000	9,189,000	12,344,000
Louisiana Gulf	96.6	113,000	2,570,000	3,412,000
North Louisiana and Arkansas	63.7	41,000	528,000	796,000
Rocky Mountains	69.7	47,000	1,756,000	906,000
California	90.9	503,000	12,561,000	93,407,000
Total reported	89.0	2,872,000	72,506,000	140,141,000
Estimated unreported	.....	308,000	3,860,000	2,900,000
*Estimated total	.....	3,180,000	76,366,000	143,041,000
*Estimated total previous week	.....	3,195,000	78,721,000	142,068,000
*July 24, 1937	.....	3,380,000	72,020,000	106,260,000

*Bureau of Mines, currently estimated.

Stocks of Crude Oil in the United States

(BUREAU OF MINES ESTIMATES)

Week ending July 16, 1938	289,312,000 barrels
Week ending July 9, 1938	290,469,000 barrels
Week ending July 17, 1937	307,139,000 barrels

Figures do not include stocks of heavy, unrefinable California crude.

H. A. Hames has been appointed superintendent of the Cargo Oil Corp.'s new refining plant to be constructed near Mankins, in Archer County, North Texas. The plant will handle crude from the K.M.A. field.

Retail Oil Markets

Tank-wagon and filling station prices on gasoline and kerosene furnished by the larger marketing firms

Prices as of July 26, 1938

Taxes

The gasoline quotations given in the following tables include the 1-cent federal tax, as well as state, county and city taxes. The gasoline is the regular or standard grade. In most areas lower grades and a premium grade also are available.

Standard Oil Co. (Indiana)

	Gasoline			Kero.
	Tank wag.	Dir.	Inc. tax	tank-wag.
Chicago, Ill.	15.6	13.6	4.0	10.5
Decatur	15.6	14.1	4.0	10.5
Joliet	15.6	14.1	4.0	10.5
Peoria	15.6	14.1	4.0	10.5
Quincy	15.4	13.9	4.0	10.3
Davenport, Ia.	15.6	14.1	4.0	‡10.5
Des Moines	15.4	13.9	4.0	‡10.3
Mason City	15.8	14.3	4.0	‡10.7
Duluth, Minn.	17.4	15.9	5.0	11.3
Mankato	17.0	15.5	5.0	10.9
Minneapolis	17.0	15.5	5.0	10.9
LaCrosse, Wis.	17.0	15.5	5.0	10.9
Green Bay	17.4	15.9	5.0	11.3
Milwaukee	16.8	15.3	5.0	10.7
Detroit, Mich.	15.3	13.8	4.0	9.0
Grand Rapids	14.8	13.8	4.0	9.3
Saginaw	16.3	14.8	4.0	9.8
Evansville, Ind.	17.1	15.6	5.0	‡11.0
Indianapolis	17.3	15.8	5.0	‡11.2
South Bend	17.6	16.1	5.0	‡11.5
Fargo, N. Dak.	17.2	15.7	4.0	12.1
Minot	18.5	17.0	4.0	13.4
Huron, S. Dak.	17.5	16.0	5.0	11.4
Kans. City, Mo.*	14.9	13.4	4.0	9.8
St. Louis*	15.2	13.7	4.0	10.1
St. Joseph*	14.9	13.4	4.0	9.8
Wichita, Kans.	14.4	10.6	4.0	7.8

*State tax 2 cents, 1-cent city tax and 1-cent federal tax. †Does not include 4-cent state tax. ‡Does not include 3-cent state tax.

Exclusive of state general sales taxes.

Discounts to commercial consumers: On purchases per month off tank-wagon prices: 1,000 gallons or more, 1.5 cents off; minimum delivery 25 gallons.

Stanolex Fuel Oil in Chicago

Effective Dec. 7, 1936, f.o.b. Chicago tank-wagon prices: Range oil, 1-99 gallons, 8.3 cents; 100-149 gallons, 7.8 cents; 150 gallons and over, 7.3 cents. Stanolex No. 1, 1-99 gallons, 8.8 cents; 100-149 gallons, 7.8 cents; 150 gallons and over, 7 cents. Stanolex furnace oil, 1-149 gallons, 7.8 cents; 150 gallons and over 7 cents; Stanolex A, 1-399 gallons, 5.75 cents; 400 gallons and over, 4.75 cents. Stanolex B, 1-799 gallons, 5.75 cents; 800 gallons and over, 4.75 cents.

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline			Kero.
	Tank-wag. dlr.	Tank-car con'r.	Inc. tax	tank-wag.
Atl'tic City, N. J.	13.4	11.4	4.0	8.0
Newark	13.4	11.4	4.0	8.0
Annapolis, Md.	14.85	13.35	5.0	9.5
Baltimore	14.25	12.75	5.0	9.0
Cumberland	16.65	14.15	5.0	10.0
Wash'g'n, D. C.	12.5	11.0	3.0	9.5
Danville, Va.	16.95	14.45	6.0	12.9
Norfolk	15.75	13.25	6.0	11.5
Petersburg	16.05	13.55	6.0	11.7
Richmond	16.05	13.55	6.0	11.7
Roanoke	17.25	14.75	6.0	12.8
Charles'n, W. V.	17.05	14.55	6.0	12.6
Parkersburg	15.35	13.85	6.0	11.2
Wheeling	16.25	14.85	6.0	12.2
Charlotte, N. C.	18.65	16.15	7.0	12.1
Hickory	19.15	16.65	7.0	12.5
Mt Airy	18.95	16.45	7.0	12.3
Raleigh	18.25	15.75	7.0	11.6
Salisbury	18.75	16.25	7.0	12.2
Charleston, S. C.	17.25	14.75	7.0	10.6
Columbia	18.25	15.75	7.0	11.6
Spartanburg	18.95	16.45	7.0	12.4

Price basis to commercial consumers, effective March 8, 1937, in Maryland, District of Columbia, and in Arlington and Fairfax counties in Virginia; and March 12 in New Jersey: To contract accounts purchasing at least one full compartment at time by hose connection, on yearly purchases: From 2,500 to 100,000 gallons, consumer tank-wagon price at time and place of delivery; 100,000 gallons per year, consumer tankcar price plus .5 cent per gallon. Consumer tank-wagon price generally will be equivalent to dealer tank-wagon price less .5 cent per gallon.

Effective May 15, 1937, in North and South Carolina, West Virginia and Virginia (except Arlington and Fairfax counties): Commercial consumers taking deliveries of 50 gallons (W. Va., 100 gallons) or more at one time will be billed at posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gallons (W. Va., 100 gallons) will be billed at 4 cents per gallon over posted consumer tank-wagon price. Generally the posted consumer tank-wagon price will be the equivalent to the dealer price less .5 cent per gallon.

Discount for kerosene, 1 cent off tank-wagon price for 25 gallons or more under contract (contract not necessary in Baltimore) except no discount in New Jersey.

Southern District

STANDARD OIL CO. OF KENTUCKY

	Gasoline			Kero.
	Tank-wag.	Net dlr.	Inc. tax	tank-wag
Atlanta, Ga.	19.0	16.0	7.0	12.0
Augusta	19.5	16.5	7.0	11.5
Macon	21.0	18.5	7.0	12.0
Savannah	20.0	17.0	7.0	12.0
Birm'ham, Ala.	21.5	18.5	8.0	12.0
Mobile	22.0	19.0	9.0	9.5
Montgomery	21.5	19.5	9.0	13.0
Jackson, Miss.	19.5	16.5	7.0	10.0
Vicksburg	20.0	17.0	7.0	10.0
Jacks'ville, Fla.	20.5	17.5	8.0	8.0
Miami	21.0	18.0	8.0	11.0
Pensacola	20.5	17.5	9.0	12.0
Tampa	19.0	16.0	8.0	10.5
Lexington, Ky.	19.5	16.5	6.0	10.5
Covington	18.0	15.0	6.0	10.5
Louisville	19.0	16.0	6.0	10.0
Paducah	16.5	13.5	6.0	10.0

*Includes 1-cent state tax.

Price basis to tank-wagon consumers: Effective January 4, 1937, 3 cents per gallon below tank-wagon price. Effective June 4, 1938, 2 cents per gallon discount eliminated from all kerosene markets in Mississippi, Alabama, Georgia, and Florida, markets being reduced correspondingly to a net basis.

Montgomery, Ala., has a county tax of 1 cent per gallon, and a city tax of 1 cent per gallon on gasoline, in addition to state tax; and 1 cent per gallon on kerosene. Mobile, Ala., has a city gasoline tax of 2 cents per gallon; Birmingham Ala., has a city gasoline tax of 1 cent per gallon; Pensacola has a city gasoline tax of 1 cent.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline		Kero.
	Dealer	Inc. tax	tank-wag.
Denver, Colo.	14.0	5.0	11.5
Grand Junction	19.0	5.0	15.0
Pueblo	16.5	5.0	10.5
Casper, Wyo.	17.0	5.0	11.5
Cheyenne	13.0	5.0	13.0
Butte, Mont.	19.5	6.0	15.5
Billings	19.5	6.0	13.0
Helena	20.0	6.0	15.5
Great Falls	19.0	6.0	15.5
Salt Lake City, Utah	18.0	5.0	16.0
Twin Falls, Ida.	21.0	6.0	18.0
Boise	21.5	6.0	18.0
Albuquerque, N. M.	17.5	*6.5	12.0

*Includes city tax of one-half cent.

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline			Kero.
	Tank-wag.	Divided con'r.	Inc. tax	tank-wag.
Ohio points	16.5	15.5	5.0	*13.0

*Includes state tax of 1 cent.

New York and New England

SOCONY-VACUUM OIL CO., INC.

	Gasoline			Kero
	Tank-wag.	Tank-car	Inc. tax	tank wag.
Albany, N. Y	14.5	12.5	5.0	9.0
*Met. N. Y.:				
M'htt'n, Br'nx	14.0	12.5	5.0	8.75
Staten Island	14.0	12.5	5.0	8.75
Q'ns & Bklyn.	14.0	12.5	5.0	8.75
Buffalo	14.5	13.4	5.0	7.5
Rochester	15.3	13.5	5.0	8.5
Syracuse	14.5	13.1	5.0	9.0
Boston, Mass.	13.0	12.0	4.0	8.5
Portland, Me.	15.0	13.0	5.0	8.75
Manch'ter, N.H.	15.0	13.6	5.0	9.0
Burlington, Vt.	15.4	13.4	5.0	9.5

*Does not include 2 per cent city sales tax which is calculated on basis of net retail price exclusive of state and federal taxes. Metropolitan New York prices are undivided dealer prices; others are split dealer.

Price basis to undivided dealer: Posted dealer tank-wagon price less .5 cent. Price basis to commercial consumer: Effective Nov. 15, 1936, monthly purchases of 25,000 gallons and over, consumer tankcar prices at delivery point plus .5 cent per gallon; monthly purchases of 5,000 to 25,000 gallons, undivided dealer price at delivery point; monthly purchases under 5,000 gallons, pay divided dealer tank-wagon prices at delivery point.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA

	Gasoline			Kero.
	Tank-wag.	Serv. sta.	Inc. tax	tank-wag.
San Francisco	17.5	18.5	4.0	11.5
Los Angeles	17.0	18.0	4.0	10.0
Fresno, Calif.	18.5	19.5	4.0	12.5
Phoenix, Ariz.	21.5	22.5	6.0	*17.5
Reno, Nev.	20.5	21.5	5.0	13.5
Portland, Ore.	20.0	21.0	6.0	13.5
Seattle, Wash.	20.0	21.0	6.0	13.5
Spokane	23.0	24.0	6.0	16.5
Tacoma	20.0	21.0	6.0	13.5

*Includes 5-cent state tax.

Discounts to dealers: On gasoline, off tank-wagon price, to 100 per cent dealers, 3 cents; to split dealers, 2 cents. To commercial consumers: on tank-wagon price: on single deliveries of 40 gallons and over, advance quantity discount extended at time of delivery, 3 cents. Service station schedule applies on single deliveries less than 40 gallons. On kerosene in tankcar, transport truck and trailer delivery, 3 cents off tank-wagon price; plant deliveries to jobbers, 2.5 cents below tank-wagon.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline			Kero.
	Tank wag.	Dlr.	Inc. tax	tank-wag.
Omaha	18.0	16.5	6.0	10.8
McCook	17.5	16.5	6.0	10.0
Norfolk	18.4	16.9	6.0	11.2
North Platte	18.4	15.4	6.0	11.0
Scotts Bluff	19.5	15.0	6.0	12.3

Discounts to commercial consumers for tank-wagon deliveries covered only by standard commercial consumers contract, effective Jan. 1, 1935.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline			Kero.
	Tank-wag. dlr.	Tank-car con'r.	Inc. tax	tank-wag.
N. Oleans, La.	19.75	17.25	*10.0	†12.0
Baton Rouge	17.75	15.25	8.0	12.0
Alexandria	17.75	15.25	8.0	10.5
Lafayette	18.0	15.5	8.0	12.5
Lake Charles	17.75	15.25	8.0	12.5
Shreveport	16.5	14.0	8.0	9.5
Kn'ville, Tenn.	21.0	18.5	8.0	14.0
Memphis	19.0	16.5	8.0	12.0
Chattanooga	20.5	18.0	8.0	13.5
Nashville	20.0	17.5	8.0	10.5
Bristol	21.25	18.75	8.0	14.5

*Includes 2-cent parish tax. †Includes 1-cent parish tax and 1-cent state tax.

Price basis to commercial consumers: Effective May 15, 1937, deliveries of 50 gallons or more in one delivery takes posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gallons at one time pay posted consumer tank-wagon price plus 4 cents per gallon. Generally, the posted consumer tank-wagon price will be equivalent to the dealer price less .5 cent per gallon.

Louisiana kerosene prices include 1-cent state tax.

Pennsylvania, Delaware and Part of New England

ATLANTIC REFINING CO.

	Gasoline			Kero
	Tank-wag. dlr.	Tank-car con'r.	Inc. tax	tank-wag.
Philadelphia, Pa.	13.75	12.25	5.0	10.0
Pittsburgh	15.0	13.0	5.0	10.5
Allentown	14.25	12.75	5.0	10.5
Erie	14.5	13.0	5.0	10.0
Scranton	14.5	13.0	5.0	10.5
Altoona	15.0	13.0	5.0	10.5
Dover, Del.	13.5	....	5.0	10.5
Wilmington	12.5	....	5.0	9.75
Springf'd, Mass.	13.5	....	4.0	8.0
Worcester	13.0	....	4.0	8.5
Hartford, Conn	13.6	....	4.0	7.0
New Haven	13.5	....	4.0	7.0
Providence, R. I.	13.0	....	4.0	8.0

Price basis to undivided dealers, dealer tank-wagon price less .5 cent per gallon. Price basis to commercial consumers in Pennsylvania and Delaware, effective March 11, 1937: Consumers under contract using 100,000 gallons or more per year full compartment hose deliveries, tankcar plus .5 cent. Consumers under contract using less than 100,000 gallons per year compartment hose deliveries, undivided dealer price. Consumers under contract less than full compartment delivery, consumers not under contract, less than full compartment delivery, and consumers not under contract full compartment delivery, divided dealer price. Less than 25 gallons, tank-wagon delivery, 4 cents per gallon above undivided dealer price.

Oklahoma and Arkansas

CONTINENTAL OIL CO.

	Gasoline		Kero.
	Dealer	Inc. tax	tank-wag.
Muskogee, Okla.	14.5	5.0	7.0
Oklahoma City	13.5	5.0	7.0
Tulsa	14.0	5.0	6.0
Ft. Smith, Ark.	14.25	5.0	7.5
Little Rock	16.75	7.5	8.0
Texarkana	14.0	5.0	8.0

Texas

	Gasoline			Kero.
	Tank-wag.	Serv. sta.	Inc. tax	tank-wag.
Dallas, Tex.	14.0	18.0	5.0	8.0
Fort Worth	14.0	18.0	5.0	8.0
Houston	14.5	19.0	5.0	8.0
San Antonio	13.5	17.5	5.0	8.0

Naphtha

STANDARD OIL CO. (INDIANA)

	Tank-wagon*
Oleum spirits	15.7
V.M.&P. naphtha	16.0
Cleaners' naphtha	15.0
Stanisol	15.0

*Prices include 3-cent Illinois tax, but not 1-cent federal tax or 2 per cent retail occupational tax.

Prices f.o.b. Chicago. Each price subject to discount of 1 cent per gallon for 150-gallon lots if covered by contract.

Canada*

3-Star Imperial Gasoline
IMPERIAL OIL, LTD.

	Tank-wag.	Inc. tax	Kero. tank-wag.
Halifax, N. S.	24.5	10.0	18.5
St. John, N. B.	24.5	10.0	18.5
Montreal, Que.	21.0	6.0	17.5
Toronto, Ont.	22.0	6.0	17.0
Hamilton, Ont.	22.0	6.0	17.0
Winnipeg, Man.	27.5	7.0	20.7
Brandon, Man.	28.1	7.0	22.8
Regina, Sask.	26.0	7.0	22.0
Saskatoon, Sask.	28.3	7.0	24.9
Edmonton, Alta.	26.5	7.0	21.5
Calgary, Alta	23.5	7.0	19.0
Vancouver, B. C.	23.0	7.0	23.0

*Imperial gallon used in Canada.

Divided dealers pay tank-wagon prices. Discount to undivided dealers, 1 cent below tank-wagon price. In maritime provinces both divided and undivided dealers pay tank-wagon price.

Retail Price Changes

Standard Oil Co. of Kentucky June 24 reduced tank-wagon and dealer gasoline .5 cent in Lexington. Reduced tank-wagon and dealer gasoline in Paducah .5 cent June 24, .5 cent June 25, 1 cent June 27, 1 cent July 11. July 7, reduced tank-wagon and dealer gasoline .5 cent in Jackson. June 23, reduced tank-wagon and dealer gasoline 1 cent in Atlanta. June 27, reduced tank-wagon gasoline 1.5 cent and dealer gasoline 2 cents in Augusta. June 24, reduced tank-wagon and dealer gasoline 1 cent and June 30 1 cent in Pensacola. June 24, reduced tank-wagon and dealer gasoline 1 cent in Tampa. June 20, reduced tank-wagon kerosene 1.5 cent in Mobile.

Standard Oil Co. (Nebraska) July 20 reduced tank-wagon gasoline 1.2 cents and tank-wagon kerosene .5 cent in McCook.

Socony-Vacuum Oil Co. July 16 reduced tank-wagon gasoline .4 cent and tankcar .3 cent in Syracuse.

Two Wells on Church Lawn Relieve the Congregation

Two wells drilled on the front lawn of the Methodist Church in Allentown, N. Y., in the heart of an oil-producing region, have placed the church on a firm financial basis and also furnish gas to heat the church and parsonage. The church decided to lease its front yard to a producer in order to finance construction of a new Sunday school and other improvements for the church.

Prices of Refined Products

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted

Prices as of July 26, 1938

The following quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents on lubricating oils.

Refinery Gasoline

OKLAHOMA (Group 3)—

U. S. Motor grades:		
62 oct. and below	.04¾	.04⅞
63-66 octane	.05	.05⅛
67-69 octane	.05¼	.05⅜
70-72 octane (regular)	.05½	.05⅝
60-62 400 grades:		
62 oct. and below	.04¾	.04⅞
63-66 octane	.05	.05⅛
67-69 octane	.05¼	.05⅜
70-72 octane (regular)	.05½	.05⅝
64-66 375	.04⅞	.05
68-70 360	.05⅛	.05¼

NORTH TEXAS—

U. S. Motor grades:		
62 octane and below	.04¾	.04⅞
63-66 octane	.05	.05⅛
67-69 octane	.05¼	.05⅜
70-72 octane (regular)	.05½	.05⅝
60-62 400	.04¾	.04⅞
64-66 375	.04⅞	.05

NORTH LOUISIANA (Ark. and N. La. delivery)—

U. S. Motor grades:		
62 octane and below		.04¾
63-66 octane		.05⅛
67-69 octane	.05¼	.05⅜
70-72 octane (regular)		.05¾

ARKANSAS (Ark. and N. La. del.)—

U. S. Motor grades:		
62 octane and below	.04⅞	.05
67-69 octane	.05⅜	.05½

CHICAGO (Based on Group 3)—

U. S. Motor grades:		
62 octane and below	.04¾	.04⅞
63-66 octane	.05	.05⅛
67-69 octane	.05¼	.05⅜
70-72 octane (regular)	.05½	.05⅝
60-62 400 grades:		
62 octane and below	.04¾	.04⅞
63-66 octane	.05	.05⅛
67-69 octane	.05¼	.05⅜
70-72 octane (regular)	.05½	.05⅝
64-66 375	.04¾	.05
68-70 360	.05	.05¼

PENNSYLVANIA (inland refineries)—

58-60 U. S. Motor:		
Below 60 octane	.05	.05⅛
65 octane	.06¾	.07
68-70 octane	.07¼	.07½

CALIFORNIA (domestic movement)—

54-58 U. S. Motor	.07	.08¼
58-60 400, 65 oct. and higher	.08	.09

EAST COAST (domestic)—

U. S. Motor, 60-64.9 octane:		
New York (Bayonne)	.06¼	.06⅛
Philadelphia	.06¼	.06½
Boston	.06½	.06¾
Baltimore	.06½	.06¾
Charleston, S. C.	.07	.07¼
U. S. Motor, 65 and above:		
*New York (Bayonne)	.06¾	.07
Philadelphia	.06¾	.07
Boston	.06¾	.07
Baltimore	.06¾	.07¼
Charleston, S. C.	.07¼	.07½

*All grades of gasoline one-eighth to one-fourth cent less for barge shipments. New York harbor prices are for New York and New England delivery. Prices for New Jersey delivery one-fourth cent lower.

GULF COAST (domestic)—

U. S. Motor grades:		
Below 60 octane	.05	.05⅛
60-64.9	.05½	.05¼
65 octane and higher	.05⅝	.05½
68-70	.05¾	.06

Naphtha

PENNSYLVANIA (inland refineries)—

52-56 450 (blending)	.05¼	.05⅜

Natural Gasoline

OKLAHOMA (Group 3)—

Grade 26-70		.03
Grade 18-55	.03½	.03⅝

NORTH TEXAS—

Grade 26-70	.02¾	.03
Grade 18-55	.03½	.03⅝

CALIFORNIA—

75-85 375-390	.06¼	.07

NORTH LOUISIANA (Ark. and N. La. delivery)—

Grade 26-70		.03⅛

Tractor Fuel

OKLAHOMA (Group 3)—

40-42 gr., 315-325 l.b.p., 110 flash, 540-550 e.p.	.04	.04¼
41-43 gr., 300-520 l.b.p., 110-125 flash, 500-520 e.p.	.04¼	.04½
46-48 gr., 210-230 l.b.p., 480 max., e.p.	.04⅝	.04⅞

Kerosene

(All kerosene water white)

OKLAHOMA (Group 3)—

41-43	.04⅛	.04⅜
42-44	.04⅜	.04⅝

NORTH TEXAS—

41-43	.04⅛	.04⅜

NORTH LOUISIANA (Ark. and N. La. delivery)—

41-43	.04⅛	.04⅜

ARKANSAS (Ark. and N. La. del.)—

41-43	.04½	.04⅝

PENNSYLVANIA (inland refineries)—

45		.05
46		.05⅛
47		.05¼

CHICAGO (Based on Group 3)—

41-43	.04¼	.04⅜
42-44	.04½	.04⅝

CALIFORNIA (Pac. Coast market)—

38-43 high burning test	.05	.06

NEW YORK (Bayonne, N. J.)—

41-43	.04⅝	.04¾

***GULF COAST (domestic)—**

41-43	.03⅞	.04

*Barge price one-eighth cent lower.

Furnace Oil

OKLAHOMA (Group 3)—

Range oil	.03⅞	.04⅛
No. 1 prime white, 38-42	.03⅞	.04
No. 1 straw, 38-40	.03⅝	.03⅞
No. 2 straw, 32-36	.03½	.03¾
No. 2 dark, 32-36	.03⅜	.03½
No. 3 zero to 15, 28-32	.03¼	.03⅜
No. 3, 15 and above, 28-32	.02⅞	.03

NORTH TEXAS—

No. 1 prime white, 38-42	.03⅞	.04
No. 1 straw, 38-40	.03⅝	.03¾

NORTH LOUISIANA (Ark. and N. La. delivery)—

No. 2, 32-36	.03¼	.03½

ARKANSAS (Ark. and N. La. del.)—

No. 2, 32-36		.03⅝

CHICAGO (Based on Group 3)—

Range oil	.03⅞	.04⅛
No. 1 prime white, 38-40	.03¾	.04
No. 1 straw, 38-40	.03⅝	.03⅞
No. 2 straw, 32-36	.03½	.03¾
No. 2 dark, 32-36	.03¼	.03½
No. 3, zero to 15, 28-32	.03¼	.03⅜
No. 3, 15 and above, 28-32	.02⅞	.03

NEW YORK (Bayonne, N. J.)—

*No. 1	.04½	.04⅝
*No. 2		.04
*No. 4		.04

*Barge deliveries one-eighth to one-fourth cent under above tankcar price.

Gas Oil and Fuel Oil

(Gas oil per gal.; fuel oil per bbl.)

OKLAHOMA (Group 3)—

U.G.I. gas oil	.02⅞	.03
No. 4, low cold test, 24-28	1.00	1.10
No. 4, 15 and above, 24-28	.85	.90
No. 5, low cold test, 18-22	.70	.75
Below 18 fuel oil, industrial	.55	.60

NORTH TEXAS—

U.G.I. gas oil	.02⅞	.03
No. 4, low cold test, 24-28	1.00	1.10
No. 5, low cold test, 18-22	.70	.75
Below 18 fuel oil, industrial	.55	.60

NORTH LOUISIANA (Ark. and N. La. delivery)—

10-14 fuel oil, industrial		.80

CHICAGO (Based on Group 3)—

U.G.I. gas oil	.02¾	.02⅞
No. 4, low cold test, 24-28	1.00	1.10
No. 4, 15 and above, 24-28	.85	.95
No. 5, low cold test, 18-22	.70	.80
No. 5, 15 and above, 18-22	.60	.70
No. 6, low cold test, 16-10	.60	.70
No. 6, 15 and above, 10-16	.35	.45

PENNSYLVANIA (inland refineries)—

36-40	.03⅝	.03⅞

CALIFORNIA—

Los Angeles:		
30-40 gas oil, per bbl.	1.20	1.40
24 plus diesel, per bbl.	1.10	1.40
24 plus diesel (bunkers)	1.25	1.55
12-16 (bunkers at tidewater)	.80	.90
10-16 (cargo lots)	.65	.85
12-17 (tankcars)	.60	.90
10-17 ((high sulfur)	.55	.85
San Joaquin Valley:		
10-18 (tankcars)	.60	.80
24 plus diesel, per bbl.	1.20	1.50
San Francisco:		
24 plus diesel, per bbl.	1.45	1.55
24 plus diesel (bunkers)	1.50	1.55
10-16 (bunkers)		.95

GULF COAST—

No. 2 fuel		.03½
43-47 diesel		.03½
48-52 diesel	.03½	.03⅝
53-57 diesel	.03⅝	.03¾
Bunkers (bulk cargoes)	.65	.70
Bunker C (bunkers)		.75

NEW YORK (Bayonne, N. J.)—

27 plus, gas oil		.04¼
28-30 diesel (lighterage 6¼c per bbl.)		1.75
28-30 diesel (tankers)	.04¼	.04½
Bunker C (to ocean-going ships in N. Y. harbor)		.95
Industrial fuel (tankcars)	.03¾	.04

Lighterage charge 5c bbl. additional.

Bright and Steam Refined

OKLAHOMA (Group 3)—

190-200 D, 15-25		.19
150-160 D, 0-10	.14	.16
150-160 D, 15-25	.13½	.15½
150-160 E, 15-25	.13	.15
100-110 D, 0-10		.14½
Steam refined:		
631 green (treated)		.12½
600 dark green (untreated)	.05	.05½

PENNSYLVANIA—

Bright Stocks (Pennsylvania Grade No. 8 color, 140-150 at 210, 545-550 flash):		
10 pour test	.15	.15½
15 pour test	.14	.14½
20 pour test	.13	.13½
25 pour test	.12	.12½
Steam refined:		
600	.08	.08½
650	.10	.10½
600 Pennsylvania flash	.10½	.11
630 flash	.13½	.14
600 Warren E filtered	.12½	.13

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—

Zero to 10 Cold Test:		
150-3		.09
180-3		.10
180-4		.09½
200-3		.10½
200-4		.10
250-3		.11½
250-4		.11
280-3		.12½
280-4		.12
300-6½		.13
400-3½		.14
100-2½ paraffin oil		.06
15-20 Cold Test:		
200-3		.10
200-4		.09½
250-3		.11
250-4		.10½
280-3		.12
280-4		.11½

GULF COAST—

Pale Oils:		
200-3	.07	.07¼
300-3	.07½	.07¾
500-3½	.08½	.08¾
750-3½	.08⅝	.09⅛
1,200-3½	.09½	.09¾
1,500-4	.09¾	.10
Red Oils:		
200-5-6	.07¼	.07½
300-5-6	.07¾	.07½
500-5-6	.08	.08½
750	.08¾	.09
1,200-5-6	.09¼	.09½

CALIFORNIA (moving to dom. market)—

Pale Oils:		
100-2½-3	.07¼	.08
200-2½-3	.07¼	.08
300-2½-3	.07¼	.08
400-3-4	.07¼	.08
450-3-4	.07¾	.08
550-3-4	.09	.11
600-3-4	.09	.11
Red Oils:		
200-4-5	.07¼	.08
300-5-6	.07½	.08
350-5-6	.09¼	.11½
400-5-6	.09¼	.11½
450-5-6	.09¼	.11½
500-5-6	.09¼	.11½
600-5-6½	.09¼	.11½
700-6½ plus	.09¼	.11½
750-6½ plus	.09¼	.11½
900-6½ plus	.09¼	.11½

PENNSYLVANIA—

150 vis. at 70° color, 400-405 flash:		
Zero pour test	.13½	.14
10 pour test	.12½	.13
15 pour test	.12	.12½
25 pour test	.11	.11½
180 vis. at 70° F., 3 color:		
25 pour test	.13	.13½
200 vis. at 70° F., 3 color:		
Zero pour test	.14½	.15
10 pour test	.13½	.14
15 pour test	.13	.13½
25 pour test	.12	.12½

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—

124-126 (a.m.p.) w.c. scale	.02¼	.02½

PENNSYLVANIA (inland refineries)—

122-124 (a.m.p.) w.c. scale	.0220	.0225

NEW YORK—

Wax in bags fully refined:		
122-125 (a.m.p.) wax		.0420
125-127 (a.m.p.) wax		.0435
128-130 (a.m.p.) wax		.0445
130-132 (a.m.p.) wax		.0455
133-135 (a.m.p.) wax		.0500
135-137 (a.m.p.) wax		.0515
124-126 (a.m.p.) w.s.		.0185
124-126 (a.m.p.) y.s		.0185
Petrolatum in barrels, carload lots:		
Dark green	.02	.02½
Amber	.02⅝	.02½
Extra amber	.02⅝	.02¾
Lily white	.05½	.05⅞
Snow white	.06½	.06¼
Cream	.04⅛	.04¼

Export Prices

GASOLINE

GULF COAST—

U. S. Motor		.05
60-62 400	.05	.05⅛
61-63 390	.05⅛	.05¼
64-66 375		.05½

LOS ANGELES—

U. S. Motor grades:		
55-65 octane		.05
65-69 octane		.05¼
Above 69 octane		.05½

KEROSENE

GULF COAST—

41-43 white	.03⅞	.04
41-43 water white	.03⅞	.04

LOS ANGELES—

41-43 water white	.05	.05¼

LUBRICANTS

(Pennsylvania Grade)

NEW YORK (f.o.s. in bbls.)—

Cylinder Stocks:		
600 Warren E	.15	.15⅛
600 S.R. unfiltered	.16	.16⅛
630 S.R. unfiltered	.17	.17⅛
600 flash, S.R.	.17	.17⅛
630 flash, S.R.	.20½	.21
Bright Stocks:		
8 color	.16¼	.16½

NEUTRAL OIL

200-3 color	.21½	.22
150-3 color	.19½	.20

PARAFFIN WAX

NEW YORK (prices per pound)—

123-126 a.m.p.		.0375
125-127 a.m.p.		.0387
128-130 a.m.p.		.0412
133-135 a.m.p.		.0437
135-137 a.m.p.		.0455
Crude Scale:		
124-126 w.s.	.0185	.0200
124-126 y.s.	.0185	.0200

Crude Oil Prices

Oklahoma, Kansas, North Central and East Central Texas

(Effective January 28, 1937)

East Texas (May 22, 1937)*	$1.35
Van, Tex.†	1.10
Camp Hill, Tex.	1.27
Cass County, Tex.‡	1.25
Talco	.73
Altus and Tipton, Okla.§	1.20
Other fields (see gravity table).	

*All companies. †Humble Oil & Refining Co.; Pure Oil Co. ‡Texas Co. §Gulf Oil Co. Talco by Humble Oil & Refining Co.

North Louisiana and Arkansas

Smackover, all grades	$ .90
Tullos and Urania	1.02
El Dorado East field	.90
Union County, Ark.	.90
Ouachita County, Ark.	.90
Lisbon, La. (Dec. 13, 1937)*	.98

*Caddo Crude Oil Purchasing Co.

Gulf Coast

(Effective January 28, 1937)

Choctaw and Darrow, La. See note below	
Clay Creek, Tex.	$1.00
Garden Island, La.	1.37
Cleveland, Tex.	1.27
Hardin, Tex.	1.15
Lafitte, La.	1.24
Livingston, Tex.	1.27
Welsh, La.	.98
Tepetate (La.) (Jan. 28, 1937)	1.24

Duval, Jim Hogg, Webb and Zapata counties, Texas, and Heyser and Placedo fields take Mirando gravity prices. Jennings, La., 5 cents lower than Gulf Coast prices on each degree. Segno, Texas, takes Gulf Refining Co.'s Gulf Coast prices. Choctaw and Darrow, Louisiana, posted for first time by Standard Oil Co. of Louisiana, start below 21 degrees at 90 cents, with 3-cent differential up to 25 gravity, then 2-cent differential up to 40 and above, $1.36. Effective October 1, 1937, Stanolind Oil & Gas Co. in Evangeline, La., pays 92 cents for below 20 gravity, adding 2 cents for each degree upward to 40 and over, at $1.34.

Rocky Mountain States

(Effective January 28, 1937)

Iles, Colo., light*	$1.18
Iles, Colo., heavy*	1.12
Greybull, Wyo.*	1.30
Torchlight, Wyo.*	1.30
Grass Creek, Wyo., light (July 8, 1938)*†	1.05
Grass Creek, Wyo., heavy (May 1, 1938)*	.50
Hamilton Dome, Wyo. (May 1, 1938)*	.45
Elk Basin, Wyo., light (July 8, 1938)*†	1.05
Frannie, Wyo., heavy*	.62
Frannie, Wyo., light (May 1, 1938)*	.65
Hogback, N. M. (Jan. 28, 1937)*	1.33
Salt Creek, Dutton Creek and Midway, Wyo., take Stanolind's Oklahoma prices on a gravity basis.	
Big Muddy, Wyo.†‡	1.23
Rock Creek, Wyo.†	1.20½
Lea County, N. M. (see West Texas gravity table).	
Artesia, N. M. (Jan. 2, 1937)‡	.90
Maljamar, N. M. (Jan. 28,1937)‡	.90
Canon City and Florence, Colo.	1.10
Lance Creek, Wyo.*	.97
Lander, Wyo. (Jan. 1, 1938)§	.51¼
Sunburst, Mont. (Nov. 16, 1937)†	.90
Cat Creek, Mont. (Jan. 1, 1938)‡	$1.30
Garland, Wyo. (Jan. 1, 1937)†	.50

*Stanolind Oil & Gas Co. and Ohio Oil Co. †Ohio Oil Co. ‡Continental Oil Co., Texas Co. (April 1, 1938). §Hudson Oil Co.

Middle Western States

OHIO OIL CO.
(Effective January 28, 1937)

Lima	$1.00
Illinois	1.35
Princeton, Ind.	1.35
Midland, Mich. (Jan. 5, 1938)*	1.12
West Branch, Mich. (Dec. 29, 1937)†	.80
Buckeye (Jan. 8, 1938)	1.09¼
Arenac, Mich. (Dec. 29, 1937)†	.80
Muskegon, Mich.	1.00
Eastern Kentucky:	
Big Sandy River (July 1, 1938)	1.32
Kentucky River (July 1, 1939)	1.40
Western Kentucky (June 22, 1938)	1.30

*Posted by Pure Oil Co.
†McClanahan P. L. and Simrall, Midland, Mich., price posted by Simrall Corp. and Pure Oil Co. includes Greendale, Porter, Beaverton, Crystal and equal grades. West Branch and Arenac by Simrall Corp. Eastern Kentucky crude purchased by Ashland Refining Co., Ashland, Ky. Buckeye posted by Simrall Corp. and Pure Oil Co.

West Texas

See gravity table.

Pecos County*	$ .91
Pecos shallow†	.81

*Shell Petroleum Corp., Gulf Pipe Line Co. and Humble Oil & Refining Co. †Shell Petroleum Corp.

Eastern States

TIDE WATER ASSOCIATED OIL CO. and NEW YORK TRANSIT CO.
(Effective June 13, 1938)

Bradford, Pa.	$1.80
Allegany, N. Y.	1.80

SOUTH PENN OIL CO.
(Effective June 13, 1938)

Pennsylvania Grade Oil in National Transit Lines (Bradford field)	$1.80
Pennsylvania Grade Oil in Southwest Pennsylvania Lines	1.46
Pennsylvania Grade Oil in Eureka Pipe Line lines	1.40
Pennsylvania Grade Oil in Buckeye Pipe Line lines	1.30
Corning Grade Oil in Buckeye Pipe Line Co., line (June 16, 1938)	1.17

PENNZOIL CO.
(Effective June 13, 1938)

Pennsylvania Grade Oil in National Transit Lines:	
Group A	$1.73
Includes Cochran, Franklin, Hamilton and Doolittle districts.	
Group B	1.72
Includes Tidioute district.	
Group C	1.71
Includes Turkey and Tidioute districts.	
Group D	1.70
Includes Bear Creek and Porkey districts.	
Group E	1.68
Includes Eldeneau, Bull Creek, Rough Run, Carbon, Dipner, Bredlin, McJunkin, Jameson, Kenerdell, Emlenton, Tiona, Lacey and Kinzua districts.	

PURE OIL CO.
(Effective June 13, 1938)

Cabin Creek, W. Va.	$1.40
Bradford Hollow, W. Va.	1.40
Kelly Creek, W. Va.	1.40

Southwest Texas

(Effective January 28, 1937)

Pettus	$1.37
Salt Flat, Darst Creek, Hilbig, Carroll, Clark, Zoboroski	1.09
Lytton Springs	1.12
Luling	1.00

Saxet and Taft take same gravity table as Gulf Coast.

Canada

Ontario (Sept. 9, 1933)*

Petrolia	$2.10
Oil Springs	2.17
TURNER VALLEY NAPHTHAS AND CRUDE OIL	
(January 5, 1938, by Imperial Oil, Ltd.)	
Clear naphtha and discolored naphtha, 65 gravity and higher	$2.14
Discolored naphtha and crude oil, 40-40.9 gravity	1.14
Increasing 2 cents for each degree gravity with top price for 64-64.9 gravity	1.62
These prices f.o.b. producers field tankage.	

*Imperial Oil, Ltd.

Rocky Mountain Runs

WYOMING

Production estimates for week ended July 23, 1938:

	Bbls.
Salt Creek	15,570
Big Muddy	1,180
Badger Basin	170
Black Mountain	140
Cole Creek	190
Dallas Derby	350
Dutton Creek	70
Elk Basin	40
Frannie	2,780
Garland	2,580
Grass Creek	3,720
G. P. dome	50
Hamilton dome	390
Hidden dome	110
Hudson	320
Labarge	840
Lance Creek	12,590
Lost Soldier	2,050
Medicine Bow	3,400
Midway	40
Oregon Basin	4,120
Osage	840
Pilot Butte	20
Quealy dome	750
Rock River	2,010
South Casper	480
Spindletop	10
Poison Spider	230
Teapot	20
Warm Springs	140
Wertz	700
Total Wyoming	55,900

MONTANA

Border	80
Cat Creek	550
Cut Bank	7,790
Dry Creek	440
Kevin-Sunburst	3,470
Pondera	540
Total Montana	12,870

COLORADO

Florence	100
Fort Collins & Wellington	280
Iles dome	2,080
Moffat	320
Orchard	50
Rangely	100
Tow Creek	140
Price	520
Total Colorado	3,590

NEW MEXICO

Cooper	4,790
Eaves	870
Eunice	24,440
Hardy	2,030
Hobbs	14,420
Jal	1,110
Langlie	3,850
Lynch	560
Lynn	840
Mattix	2,910
Monument	25,550
North Lynch	50
Penrose	5,120
Rhoades	190
Skelly	1,930
South Eunice	2,960
Vacuum	2,420
Artesia-Maljamar	6,220
Getty	300
Hogback	200
Rattlesnake	740
Table Mesa	90
Total New Mexico	101,590
Total Rocky Mountain region	173,950

Dick Schwab, independent oil man of Houston, Tex., and Mrs. Schwab, are on a vaction tour in Alaska.

Crude Prices by Gravities

	1 Oklahoma-Kansas	2 Oklahoma-Kansas	3 North and Central Texas	4 East Central Texas (Mexia district)	5 North Louisiana-Arkansas	6 Gray County, Texas	7 Hutchinson-Carson counties, Texas	8 Rodessa, Louisiana-Texas and Panola County, Texas	9 Conroe, Tomball, Raccoon Bend, (Deep) Satsuma	10 Gulf Coast	11 Gulf Coast	12 Lea County, N. Mex. West Texas except Pecos County	13 Mirando district, Texas	14 Marion County, Texas	15 Refugio, Greta, Saxet, Taft, Texas	16 Anahuac, Flour Bluff, Dickson, Turtle Bay	17 White Castle, Louisiana	18 Iowa, Louisiana	19 Cayuga, Texas
Bel. 18	....	....	....	....	....	....	....	....	....	$ .95	....	....	....	....	....	....	....	$ .90	....
18-18.9	....	....	....	....	....	....	....	....	....	.95	....	....	....	....	....	....	....	.92	....
19-19.9	....	....	....	....	....	....	....	....	....	.95	....	....	....	....	....	....	....	.94	....
20-20.9	....	....	....	....	....	....	....	....	....	.95	$ .95	....	$ .96	....	$1.01	....	.96	.96	....
21-21.9	....	....	....	....	....	....	....	....	....	.98	.98	....	.98	....	1.03	....	.98	.98	....
22-22.9	....	....	....	....	....	....	....	....	....	1.01	1.01	....	1.00	....	1.05	....	1.01	1.01	....
23-23.9	....	....	....	....	....	....	....	....	....	1.04	1.04	....	1.02	....	1.07	....	1.04	1.04	....
24-24.9	....	....	....	....	....	....	....	....	....	1.07	1.07	....	1.04	....	1.09	....	1.07	1.07	....
Bel. 25	....	$ .98	....	....	$ .90	....	....	$ .93	....	....	....	....	....	$ .90	....	....	....	....	$ .88
25-25.9	....	1.00	....	....	.92	....	....	.95	....	1.10	1.10	$ .78	1.06	.92	1.11	....	1.10	1.10	.90
26-26.9	....	1.02	....	....	.94	....	....	.97	....	1.13	1.13	.80	1.08	.94	1.13	....	1.13	1.13	.92
27-27.9	....	1.04	....	....	.96	....	....	.99	....	1.15	1.15	.82	1.10	.96	1.15	....	1.15	1.15	.94
28-28.9	....	1.06	....	....	.98	....	....	1.01	....	1.17	1.17	.84	1.12	.98	1.17	....	1.17	1.17	.96
Bel. 29	$1.06	....	$ .96	$1.03	....	....	....	....	$1.20	....	....	....	....	....	....	....	....	....	....
29-29.9	1.08	1.08	.98	1.05	1.00	....	....	1.03	1.22	1.19	1.19	.86	1.14	1.00	1.19	....	1.19	1.19	.98
30-30.9	1.10	1.10	1.00	1.07	1.02	....	....	1.05	1.24	1.21	1.21	.88	1.16	1.02	1.21	$1.16	1.21	1.21	1.00
31-31.9	1.12	1.12	1.02	1.09	1.04	....	....	1.07	1.26	1.23	1.23	.90	1.18	1.04	1.23	1.18	1.23	1.23	1.02
32-32.9	1.14	1.14	1.04	1.11	1.06	....	....	1.09	1.28	1.25	1.25	.92	1.20	1.06	1.25	1.20	1.25	1.25	1.04
33-33.9	1.16	1.16	1.06	1.13	1.08	....	....	1.11	1.30	1.27	1.27	.94	1.22	1.08	1.27	1.22	1.27	1.27	1.06
34-34.9	1.18	1.18	1.08	1.15	1.10	....	....	1.13	1.32	1.29	1.29	.96	1.24	1.10	1.29	1.24	1.29	1.29	1.08
Bel. 35	....	....	....	....	....	$ .96	$ .91	....	....	....	....	....	....	....	....	....	....	....	....
35-35.9	1.20	1.20	1.10	1.17	1.12	.98	.93	1.15	1.34	....	1.31	.98	1.26	1.12	1.31	1.26	1.29	1.29	....
36-36.9	1.22	1.22	1.12	1.19	1.14	1.00	.95	1.17	1.36	....	1.33	1.00	1.28	1.14	1.33	1.28	1.29	1.29	....
37-37.9	1.24	1.24	1.14	1.21	1.16	1.02	.97	1.19	1.38	....	1.35	1.02	1.30	1.16	1.35	1.30	1.29	1.29	....
38-38.9	1.26	1.26	1.16	1.23	1.18	1.04	.99	1.21	1.40	....	1.37	1.04	1.32	1.18	1.37	1.32	1.29	1.29	....
39-39.9	1.28	1.28	1.18	1.25	1.20	1.06	1.01	1.23	1.42	....	1.39	1.06	1.34	1.20	1.39	1.34	1.29	1.29	....
40,over	1.30	1.30	1.20	1.27	1.22	1.08	1.03	1.25	1.44	....	1.41	1.08	1.36	1.22	1.41	1.36	1.29	1.29	....

Effective July 8, 1938, Standard Oil Co. of Louisiana posted prices in Buckner, Magnolia, and Village pools in Columbia County, Arkansas, as follows: Below 25 degrees 83 cents; 25-25.9 degrees 85 cents; with 2 cents added for each degree upward to and including 40 degrees and above at $1.15.

Column 1—Companies posting are Barnsdall, Bell, Champlin, Continental, Cushing, Derby, Bay, Eason, El Dorado, Cities Service, Falcon, Globe, Gulf, Johnson, National, Phillips, White Eagle, Stanolind, Sunray, Texas, Sun, Vickers and Wilcox.

Column 2—Anderson & Prichard, Carter, Cosco, Deep Rock, Magnolia, Mid-Continent, Pure, Rock Island, Shell, Sinclair, Skelly and Tide Water.

Column 3—All purchasers.

Column 4—Humble Oil & Refining Co. and Sinclair Oil Purchasing Co

Columns 5, 6, 7 and 8—All companies. Effective July 8, by Standard Oil Co. of Louisiana, Buckner, Magnolia and Village, Arkansas, 7 cents per barrel less than prices in Column 5.

Column 9—Humble Oil & Refining Co. and Sun Oil Co. Tide Water Oil Co.'s schedule starts at 35 degrees, $1.34 with 2-cent spread up to 40 and over at $1.44. (Raccoon Bend prices are for deep sand oil.)

Column 10—The Texas Co. (Gulf Refining Co. pays same prices up to and including 34 gravity, but continues its 2-cent spread up to 40 and over at $1.41.)

Column 11—Humble Oil & Refining Co., Sinclair Prairie Oil Marketing Co., Sun Oil Co. Column 12—All purchasers. Column 13—All purchasers (effective July 6, 1937). Column 14—Magnolia Petroleum Co. Column 15—Humble Oil & Refining Co. (effective July 6, 1937). Column 16—Humble Oil & Refining Co. Columns 17 and 18—Shell Petroleum Corp. Column 19—Tide Water Oil Co.

Market Record of Active Oil Stocks

Compiled by Carl H. Pforzheimer & Co., 25 Broad Street, New York City, Member New York Stock Exchange and New York Curb Exchange

New York Stock Exchange

1938 High	1938 Low	Week ending July 23 Sales	High	Low	Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1937	1937 High	1937 Low	1936 High	1936 Low
78	55	5,100	76¾	73½	76⅛	Amerada Corp.	788,675	N.P.	50cQ	7-30-38	$2.00	114⅞	51½	125½	75
27⅜	17¾	16,500	27⅜	25¾	26⅞	Atlantic Refining	2,663,999	$25	25cQ	6-15-38	1.00	37	18	35⅛	26⅝
22¾	12⅛	11,600	22¾	21⅜	22¾	Barber Asphalt Co.	390,223	$10	75c	12-16-37	1.00	43⅜	10⅛	38½	21
21⅝	10⅛	33,700	21⅝	20⅛	20⅜	Barnsdall Oil Co.	2,250,344	$5	25cQ	8-1-38	1.00	35¼	10	28¼	14⅛
10¾	7	33,200	10¾	10⅛	10⅝	Consolidated Oil Corp.	13,915,167	N.P.	20cQ	8-15-38	.90	17⅞	7	17¼	11½
35½	21¼	20,400	35½	34	35⅛	Continental Oil of Delaware	4,682,583	$5	25cQ	6-30-38	1.50	49	24	44⅞	28⅛
9⅜	5	28,100	9¾	9⅛	9½	Houston Oil (new)	1,098,618	$25		10-17-30	....	17⅝	4¾	13⅞	6⅝
22⅝	12¼	6,300	20¾	20	20⅜	Mid-Continent Petroleum	1,857,912	$10	25c	6-1-38	1.50	35⅝	14	30⅞	17¼
17¾	10⅝	1,300	17¾	17¼	17¼	Mission Corporation	1,382,945	$10	$1	6-29-38	1.25	34	15	29⅞	16⅝
23	14⅛	51,600	22⅝	19¼	22	National Supply	1,155,170	$10	$2 pf.‡	12-22-37	(‡)	41⅝	17⅝	75½	19⅞
14⅞	9	20,400	12¾	12⅛	12½	Ohio Oil Co.	6,563,377	N.P.	50c	12-15-37	1.00	22⅞	8	18	12⅛
15⅞	10¼	1,000	15¼	14¼	15	Pacific Western Oil	1,000,000	N.P.	75c	12-15-37	.75	29¾	11⅜	23½	11⅜
9¼	7	No sales	..	..	..	Pan American Pet. & Trans.	4,702,945	$5	$1 *	12-21-37	1.00	17⅛	7	20⅝	12¼
44⅜	27¼	31,100	44⅜	42⅛	43	Phillips Petroleum	4,449,052	N.P.	50cQ	9-1-38	2.75	64	30⅛	52⅝	33⅛
25	15	9,100	25	23	25	Plymouth Oil Co.	1,029,800	$5	35cQ	6-30-38	1.65	29⅞	13	27⅜	11⅞
13½	8¼	58,400	13½	12⅝	13	Pure Oil Co.	3,285,120	N.P.	25c	12-1-37	.25	24⅜	8¾	27⅞	16
8⅜	5	27,800	8⅛	7⅝	7¾	Richfield Oil Corp.	3,896,638	N.P.	25c	12-24-37	.25	6½	4⅛	..	..
27½	15½	7,400	26½	25⅛	26	Seaboard Oil of Delaware	1,244,383	N.P.	25cQ	6-15-38	1.00	54⅛	16	44	30½
18⅜	10	11,700	18⅜	17¼	17⅜	Shell Union Oil	13,070,625	N.P.	35c	7-15-38	1.00	34¾	14⅞	28¼	14⅝
34¾	18½	10,200	32¾	30½	31½	Skelly Oil	1,003,949	$15	50c	6-25-38	1.50	60⅝	26½	47⅜	19½
16⅜	10¾	46,200	16	15⅛	15¾	Socony-Vacuum	31,151,071	$15	25c	3-15-38	.80	23¼	13	17½	12½
34⅜	25⅛	19,800	34⅜	32	34¼	Standard Oil of California	13,014,754	N.P.	35cQ†	6-15-38	2.00	50	27⅛	47⅝	35
35½	24¾	21,100	34⅜	32¾	34⅜	Standard Oil (Indiana)	15,267,030	$25	25cQ	6-15-38	2.30	50	26½	48½	32⅜
35½	32½	100	33½	33½	33½	Standard Oil of Kansas	112,837	$10	$5	12-20-37	5.00	43	30⅝	31	25
58¼	39¾	39,100	58¼	54⅞	58¼	Standard Oil of New Jersey	26,224,767	$25	$1SA†	6-15-38	2.50	76	42	70⅜	51⅛
59	45	900	59	57½	57¾	Sun Oil	2,316,484	N.P.	25cQ	9-15-38	$1 & 8% Stk.	77½	44½	91	70
3⅝	1¾	17,400	3½	3⅛	3¼	Superior Oil Corp.	1,388,079	$1			....	7¾	1½	6¾	3
49⅜	32⅝	43,100	49⅜	46⅜	49	Texas Corp.	10,875,006	$25	50cQ	7-1-38	2.25	65⅛	34¾	55¼	28⅞
4⅞	2⅝	7,200	4⅝	4⅛	4½	Texas Gulf Producing Co.	888,137	N.P.	10c	12-23-37	.10	9⅝	2	8⅞	4⅜
12	7	14,700	12	11¼	12	Texas Pacific Coal & Oil	888,237	$10	10c	6-1-38	.40	16⅝	5⅜	15¼	7½
15⅝	10⅛	18,700	15⅝	14⅞	15½	Tide Water Associated	6,369,175	$10	25cQ	6-1-38	1.20	21⅝	13½	21¾	14¾
22½	17⅛	6,700	22⅛	21⅝	22	Union Oil of California	4,666,270	$25	30cQ	8-10-38	1.40	28¼	17½	28½	20¾
23½	20	1,300	22	21	21¾	Union Tank Car Co.	1,200,000	N.P.	30cQ	6-1-38	1.60	31½	22	31⅝	22⅝
3⅛	1⅝	800	3	2⅝	2⅞	Wilcox Oil & Gas	506,522	$5	....	5-10-28	....	6¼	1⅝	5¼	2⅜

*Payable in 3½% notes. †Includes extras. ‡One-tenth share $2 preferred stock.

New York Curb Exchange

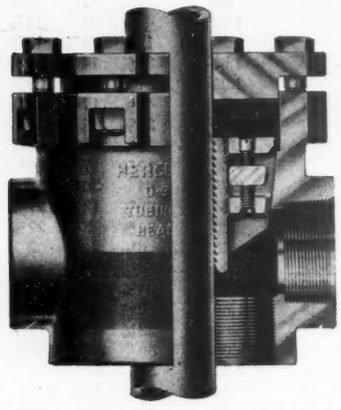
1938 High	1938 Low	Week ending July 23 Sales	High	Low	Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1937	1937 High	1937 Low	1936 High	1936 Low
11	5	15,500	11	10	10⅜	American Republics Corp.	1,308,049	$10	10c	7-11-38	$0.40	10	6⅝	..	..
10¼	5⅛	7,700	8¾	8¼	8¼	Bridgeport Machine Co.	260,000	N.P.	1.25	12-30-37	$2.00	21⅜	7	21	13¼
39	31	150	31½	31	31	Buckeye Pipe Line Co.	200,000	$50	50cQ	6-15-38	3.75	51½	36	50	39¾
112	97	150	112	110¼	112	Chesebrough Mfg. Co.	120,000	$25	$1.50Q†	6-27-38	7.00	123	95½	124¾	105
11	7¾	5,200	10⅛	9¾	9¾	Cities Service (new)	3,714,317	$10	....	6-1-32	....	5⅝	1½	7⅜	3
2⅜	⅞	2,000	1½	1¼	1⅜	Cosden Petroleum	462,551	$1	.....	.....	....	5½	1½	4½	1½
27½	17½	8,600	24½	22½	24½	Creole Petroleum	6,975,383	$5	50cSA†	6 10-38	1.00	38¾	20¼	39	19⅞
9	5½	No sales	..	..	..	Darby Petroleum	351,390	$5	25cSA	7-15-38	.50	18⅝	6½	18⅛	9
3½	2	900	3	2¾	2⅞	Derby Oil & Refining	263,162	N.P.			....	8⅜	2¼	6¾	1⅞
31	25⅝	No sales	..	..	..	Eureka Pipe Line	50,000	$50	50c	8-1-38	4.00	47½	24½	47½	38½
46¾	33	9,300	46¾	44¼	46	Gulf Oil Corp.	9,076,202	$25	25cQ	7-1-38	1.00	63½	33	59	36
72⅝	56	6,200	72½	70¼	71¾	Humble Oil & Refining	8,987,840	N.P.	37½c	7-1-38	2.00	87	54⅞	80	57
19½	15	3,500	17⅜	17	17⅛	Imperial Oil of Canada	26,965,078	N.P.	62½cSA†‡	6-1-38	1.25	24¼	14½	24½	19¾
8⅞	6⅝	800	8⅞	8⅛	8⅞	Indiana Pipe Line	300,000	$10	30c	5-14-38	.80	15	5⅞	9¾	5½
31¼	23	3,900	26⅛	25½	26⅛	International Petroleum	14,324,088	N.P.	$1.25†‡	6-1-38	2.50	39½	23½	39⅝	32⅝
5	3	400	4	4	4	Kirby Petroleum Co.	500,000	$1	10c	4-15-38	....	8¾	2⅝	5⅜	2⅝
25⅛	15⅝	2,900	24⅜	22¾	23¼	Lion Oil Refining	434,820	N.P.	25cQ	7-25-38	1.50	34	12½	17¾	7⅜
9½	6⅝	2,400	9½	9	9¼	Lone Star Gas	5,533,747	N.P.	20c	8-20-38	.60	14¼	5¼	14¼	9⅞
9⅜	6½	7,000	9⅛	8⅝	8¾	Louisiana Land & Exp.	2,977,449	N.P.	10cQ	6-15-38	.50	15¼	6¾	15⅜	9⅞
8½	6⅝	1,100	8½	8¼	8½	Midwest Oil Co.	998,444	$10	50c	6-15-38	1.00	14⅝	6¼	..	..
5¾	4½	600	5⅜	5⅜	5⅜	Mountain Producers	1,593,584	$10	30cSA	6-15-38	.60	7⅞	4⅛	8⅜	5
14⅝	12⅛	5,900	12⅞	12	12	National Fuel Gas	3,810,183	N.P.	25cQ	7-15-38	1.00	19½	12	23	17⅜
9¼	7¼	1,900	8⅜	7½	7⅞	National Transit	509,000	$12.50	35cSA	6-15-38	1.00	12½	7¼	15⅜	9¼
2⅝	1½	No sales	..	..	..	New Mexico and Arizona	1,000,000	$1	1c	12-1-36	....	5	1⅛	6⅝	1⅝
4½	4	No sales	..	..	..	New York Transit	100,000	$5	15c	4-15-38	1.00	5⅜	3⅞	6¼	4¼
6	4	600	5⅞	5	5⅞	Northern Pipe Line	120,000	$10	20c	6-1-38	1.00	12¾	5¾	9¾	4⅞
7⅜	3¾	1,900	5⅝	5	5¼	Pantepec Oil	2,441,142	$1	....	.....	....	9⅝	2¾	10⅛	3¼
3½	1⅝	1,900	3	2⅝	2⅝	Root Petroleum Co.	336.045	$1	25c	2-1-37	.25	13¾	2	19¼	4½
4	2⅛	400	3½	3¼	3½	Ryan Consolidated	296,931	N.P.	....	....	....	6½	2¼	4¾	1⅞
5⅜	3⅝	No sales	..	..	..	Southern Pipe Line	100.000	$10	15cSA	3-1-38	.45	7¼	3⅞	7⅞	3¼
39	28¾	800	36¼	35½	36	South Penn Oil	1,000,000	$25	50cQ†	6-30-38	3.65	56	35	44	32½
22¼	19	100	21	21	21	Southwest Penna. Pipe Lines	35,000	$50	50cQ	7-1-38	2.00	42	20	60	44
18¾	15	1,100	18⅝	18	18	Standard Oil of Kentucky	2,604,790	$10	25c	6-15-38	1.50	21⅛	14¾	23⅜	17⅛
7½	6⅛	200	6¾	6¾	6¾	Standard Oil of Nebraska	166,403	$25	25c	3-29-37	.25	13¾	8	14⅝	11
22¾	16¼	1,000	22¼	21⅝	21¾	Standard Oil of Ohio	753,740	$25	25c	6-15-38	1.50	45	16	40	21¾
3¼	2⅛	1,700	2⅞	2¾	2¾	Sunray Oil	2,006,176	$1	10c	12-24-37	.25	4⅞	2	5	2⅝
5	3½	800	4½	4½	4½	Texon Oil & Land	936,024	$2	15cQ	6-30-38	.45	7⅝	2	9¾	5⅜
7⅝	4¼	1,300	7¼	7	7⅛	Transwestern Oil Co.	750.000	$10	....	.. ..	....	13⅞	4⅝	..	..
5¼	2¾	28,500	4⅞	4¼	4½	United Gas Corp.	7,818,959	$1	....	.....	....	13⅜	3	10¾	4

†Includes extras. ‡Payable in Canadian funds. §Of which $1 was in preferred stock

New or Improved Equipment

Full-Opening Tubing-Head Is Adaptable for Acidizing

Hercules Tool Co., Tulsa, has placed on the market its new D-9 tubing-head, adaptable for acidizing purposes. This one-piece, full-opening



head is of compact design, having an overall height of only 11 inches.

The head has specially constructed slips which can be operated by only one man when running or pulling tubing. Hinged together in one unit, the slips are held around the tubing by a latch which is pressed into locking position by the finger of the operator. The slips grip the tubing in such a way that, when lowered, the tubing will pull them down into the tubing-head should there be a gas pressure; and down through the tubing oil-saver or blowout-preventer if one is used. Likewise, when pulling tubing, the slips will ride the tubing out of the head and are easily removed.

Above the slips the Hercules patented overhead-packing arrangement permits adjustment of pressure on the packing, or repacking if necessary, without disturbing the well hook-up. The body of the new tubing-head is made of electric cast steel tested for 2,500 pounds pressure, and has two 3-inch side outlets. The head is made in 5½-inch to 7-inch O. D. sizes.

Jackson Division Manager for Rector

M. L. Jackson has been appointed division manager of the Rector Well Equipment Co., Fort Worth, Tex., in charge of the North Louisiana and Arkansas district. His headquarters are at 631 Spring Street, Shreveport, La. Mr. Jackson joins the Rector organization following five years' field experience at Seminole, Okla., and Rodessa, La.

Here and There With Men Who Manufacture Equipment

T. J. Flanagan, president of Gaso Pump & Burner Manufacturing Co., Tulsa, has left with his family for a month's vacation in Cuba.

L. H. Gilmer Co., Philadelphia, Pa., has appointed R. V. Stout district manager of its oil-field division for Kansas. Mr. Stout has been identified with the selling of oil-field production equipment for 13 years, most recently with the Lucey Products Corp. His headquarters are in Wichita.

Walter O'Bannon, of the Walter O'Bannon Co., Tulsa, is spending a month in California, combining business with pleasure. He was accompanied by Mrs. O'Bannon.

Norman R. Downie, formerly wire rope salesman in the New York district for Bethlehem Steel Co., has been transferred to the home office at Bethlehem, Pa., where he will assist C. M. Ballard, manager of wire rope sales. Mr. Downie was eastern manager for Williamsport Wire Rope Co. until Williamsport was acquired by Bethlehem last year.

Shipped to 61 Countries in 1937

Foreign trade to 61 countries, exclusive of England and the United States, proved valuable last year to Audley Engineering Co., Ltd., of London, England, and Merco Nordstrom Valve Co., Pittsburgh, Pa., manufacturers of Audco and Nordstrom lubricated plug valves. Records show that shipments were made to Argentina, Australia, Bahrein Islands, Belgium, Brazil, Burma, Canada, Canary Islands, Chile, China, Colombia, Costa Rica, Cuba, Czechosolvakia, Dutch East Indies. Dutch West Indies, Ecuador, Egypt, England, France, Germany, Greece, Gutemala, Hawaii, Honduras, Hungary, Iceland, India, Iran, Iraq, Ireland Northern, Irish Free State, Italy, Japan, Liberia, Malta, Mexico, Morocco, Newfoundland, New Zealand, Nicaragua, Norway, Panama, Peru, Philippine Islands, Poland, Portugal, Portuguese East Africa, Puerto Rico, Rumania, Russia, Saudi Arabia, Straits Settlements, Sweden, Switzerland, Syria, Trinidad, Turkey, Union of South Africa. Uruguay, and Venezuela.

Reversing Countershaft Clutch Easily Operated, Noiseless

The Bridgeport gearless reversing countershaft clutch, manufactured and distributed by Bridgeport Machine Co., Wichita, Kans., is de-

signed for use when internal combustion engines are the prime mover for pumping and for cable-tool or rotary drilling. Among its features, according to the manufacturer, are ease of operation; direction of rotation can be changed almost instantly from forward to reverse and from reverse to forward; same speed of rotation in reverse, in relation to the speed of the prime mover, as the speed of rotation forward free from noise.

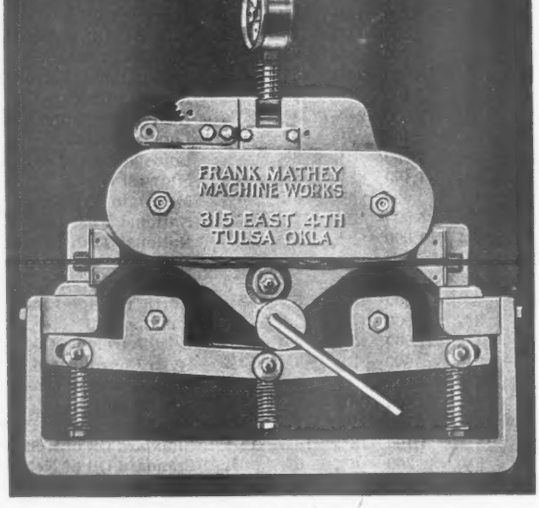
Represent Kropp on West Coast

Kropp Forge Co., Chicago, maker of die and hammer forgings and forged-steel flanges, has appointed West Coast sales representatives and a California flange distributor. John L. Haney, Pacific Commerce Building, Los Angeles, has taken over the sales representation for all lines of the company in California; and Cecil H. Bacon, 815 East Prospect Street, Seattle, Wash., will be Kropp representative for the Pacific Northwest. Howard Supply Co., 5125 Santa Fe Avenue, Los Angeles, has been appointed California distributor for Kropp flanges.

TWO INDICATING DEVICES COMBINED IN SINGLE UNIT

The Two-in-One indicator, announced by Frank Mathey Machine Works, Tulsa, is a new departure in measuring devices and weight-indicators, since it combines both machines in a single unit.

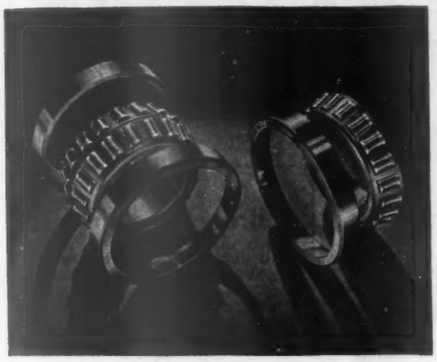
The capacity of the machine is 10 to 300 pounds and 10,000 feet. The Two-in-One indicator contains a special aluminum body, is equipped with heat-treated rollers mounted on ball bearings and with hardened U-guide blocks. Flexibility is achieved through tension springs and eccentric knee-action construction. The unit is a compact machine, only 17 inches long, 18 inches high, and 11 inches wide. Weighing only 40 pounds, it permits quick and easy portability. It is installed on truck or automobile and permits simultaneous reading of both depth and weight, as the unit is always in full view of the operator. The machine is sold without the weight-indicator where the operator wants only the measuring device.



The illustration shows side view of indicator with wire line in position and about to be closed for registering weight on the indicator. All rolls and guide-blocks are heat-treated and the machine operates on roller and ball bearings. A single lever controls both the lower rollers on eccentric and the roller on the weight-indicator. This lever, which pulls the weight-indicator roll down in line with the guide-blocks, makes for easy quick installation of the steel line.

Link-Belt Is Introducing Line of Unmounted Roller Bearings

Of interest to designers and builders of machinery equipment is the announcement that Link-Belt Co., Chicago, has placed on the market



a complete line of Link-Belt Shafer radial-thrust single-row and double-row roller bearings in the naked or unmounted form, and that a 12-page book, complete with engineering data for figuring applications, has been prepared, to cover the subject.

The book stresses: (1) Free rolling action with unimpaired loading capacity, even in the presence of shaft deflection or misalignment, is assured. (2) No provision for misalignment need be made in the bearing housing or mounting. (3) Thrust capacity is provided by the roller and raceway shapes and by the angular position of the curved rollers between curved races. (4) Radial or thrust or any combination of radial-thrust loads will be carried equally as well and on the same full contact area under all conditions of alignment. (5) There is no possibility of rollers pinching or binding, and no need for auxiliary means of taking the thrust.

The new book gives dimensions, weights, load ratings at 500 r.p.m., and list prices, for both single-row and double-row bearings. Included also are engineering data, such as determination of radial load, load ratings, modifying factors, life factors, operation factors, speed factors, and formulae and examples covering all types of loading. A copy of this new book, No. 1652, may be obtained by writing to Link-Belt Co., Chicago, Philadelphia, Indianapolis, or other office.

Bulletins, Booklets and Other Literature for the Trade

A book of more than ordinary interest is the looseleaf volume on "Molybdenum in Steel," produced by Climax Molybdenum Co., 500 Fifth Avenue, New York. The publication is divided into 13 sections, dealing with various characteristics and applications of molybdenum. Much information of engineering value is presented. Where there are problems of corrosion, pressure or temperature this book is likely to be of special importance.

An illustrated catalog of mechanical goods products manufactured by Goodyear Tire & Rubber Co., Akron, Ohio, is of interest to users of transmissions, conveyor and elevator belting, air, water, welding, steam and all other types of hose, railroad goods, etc.

Brown Instrument Co., Philadelphia, Pa., has issued a folder on air-operated controllers.

A fact-filled 36-page booklet, illustrating and describing methods for handling cleaning operations in conjunction with automotive fleet maintenance and truck motor repair work has been released by Oakite Products, Inc., 14 Thames Street, New York. Of interest to producers, refiners, and marketers, who do not have facilities for removing paint with hot solutions or by steam cleaning, is the method developed for doing the work with cold solutions.

Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa., has prepared a 24-page illustrated booklet devoted to radial-flow surface condensers.

Metallizing Engineering Co., Inc., New York, is mailing on request a reprint of a paper written by Harry Shaw, consulting and research engineer, on "Metal-Sprayed Surfaces in Relation to Lubrication."

Spraco portable Fire-Fog equipment for extinguishing oil and other flammable-liquid fires, is described in a folder obtainable on request from Spray Engineering Co., 114 Central Street, Somerville, Mass.

"Checking Up on Check Valves," an eight-page, two-color booklet issued by Crane Co., 836 South Michigan Avenue, Chicago, covers the whole check-valve field in word, picture and diagram.

"A Cro-Lay surface can be scratched by only two other materials," says the July issue of Between Calls, published by Walter O'Bannon Co., Tulsa. "One is a diamond, and the other is corundum, neither encountered in oil wells."

Canariis Joins Pomona Pump Co.

Svend A. Canariis, formerly waterworks engineer for the Westinghouse Electric & Manufacturing Co., in East Pittsburgh, Pa., has been appointed waterworks engineer for the Pomona Pump Co., Pomona, Calif. Mr. Canariis was born and educated in Denmark, and came to this country in 1922. His engineering training gave him a background for his work as electrical designer for Alabama Power Co., senior electrical engineer in the sales engineering department of Duquesne Light Co., Pittsburgh, Pa., and electrical engineer for the water department in Pittsburgh. His headquarters will be in Pittsburgh.

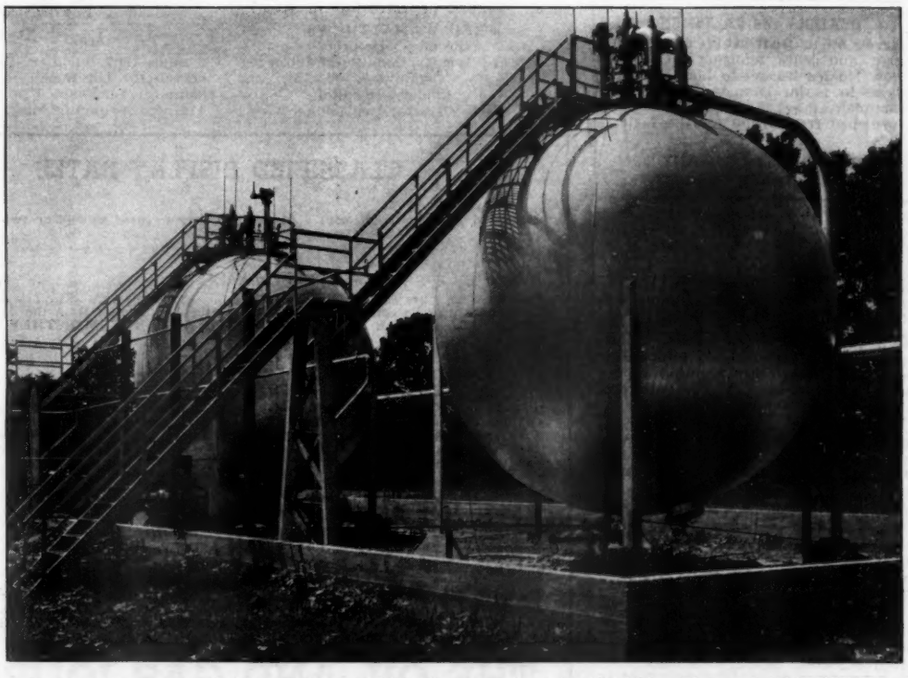
National Offers Geared Power for Shallower Oil Fields

A new geared power of the enclosed weatherproof type for operating entirely in the open has been introduced into the shallower fields. This

power, the National Type G-30, is rated at 30 horsepower at 20 s.p.m., with a regular stroke length of 21 inches and provision for 20 well connections. It is compact, economically installed, and adaptable to all types of prime movers. The general design is the same as that of the larger National geared power.

The rotating shaft brings the pull-rod load close to the case and allows a wide spacing of main-shaft bearings. This type of construction is said to have proven particularly effective against severe well loads. The upper half of the case is used to support the upper bearing load close to the pull-rod load itself. A single crank is shrunk on and keyed to the rotating shaft. The upper half of the case is split for convenience in assembling and inspection.

All bearings are Timken roller. Alloy-steel heat-treated gearing with wide-faced pinions of large diameter provide low bearing pressures and long wear. Well connections are made with a replaceable bronze bushing which takes all the wear that usually comes on the power disc. All enclosed parts are lubricated by a vane-type oil pump.



Hortonspheres installed by Chicago Bridge & Iron Co. for storage of ethyl chloride at a southern refinery. Each is 23 feet in diameter and has a capacity of 1,135 bbls. They are of welded construction, designed to operate at a pressure of 75 pounds.

CLASSIFIED ADVERTISING

Patent Attorneys

JACK A. SCHLEY
PATENT LAWYER
Patents obtained — infringement practice in all Courts—oil field experience. 1807-11 Tower Petroleum Bldg., Dallas. 2014 Second Nat'l. Bank Bldg., Houston. 707 Insurance Building, San Antonio. 433 Munsey Building, Washington, D. C. Address any of these offices.

PATENTS — TRADE MARKS
All cases submitted given personal attention.
Form "Evidence of Conception" with instructions for use and "Schedule of Government and Attorneys' Fees"—FREE.
LANCASTER, ALLWINE & ROMMEL
Patent Law Offices
418 Bowen Bldg. Washington, D. C.

I. BENJAMINS
Reg'd. Pat. Atty.—Mech. Engineer
Drawings, Design Patents, Trademarks
114 E. 32nd St., New York City
Lexington 2-2561

PATENTS obtained — inventions developed — working drawings — engineering advice. Mid-Continent Engineering Company, E. H. Waldrop, Shawnee, Okla

Leases and Drilling Blocks

SECURITY ABSTRACT COMPANY
El Dorado, Union County, Arkansas, Magnolia, Columbia County, Arkansas. Fee, Lease and Mineral ownership on short notice. Ownership maps.

LEASES—East Texas, La., South Ark. 20 acres up, dollar acre up. Owners—Address Attorney, Box 1122, Little Rock, Ark.

DEALERS and SALESMEN
Here's an unusual set-up for salesmen and sales managers. Choice New Mexico leases—in hot plays—close to major company holdings. Complete maps and selling story furnished free. Write for the facts today.
RUBUSH and COMPANY
1307 Pacific Ave. Dallas, Texas

WHY PAY big prices for Oil Leases when potential land in fee, all royalty, can be bought for $5. Investigate. J. N. SWANSON, Sayre, Oklahoma.

50,000 A. in and near Ill. production area. Consider drilling deal. Illinois Minerals Co., Cairo, Illinois.

NEW MEXICO is fast developing into great oil state. For reliable information subscribe to my weekly scouting report. Send for sample copy. W. S. Patterson, Santa Fe, New Mexico.

LEASE to responsible party for immediate drilling oil and gas, 270-A. Le Flore County, Oklahoma. Address Box J-478, The Oil and Gas Journal, Tulsa, Oklahoma.

BLOCK of leases in Ark. surrounded by four drilling wells and major Co.'s paying rentals and taking titles. Desire drilling for acreage. Address Box J-490, The Oil and Gas Journal, Tulsa, Okla.

FOR LEASE for oil and gas purposes, 240 A. land in Anderson County, Kansas. Oil was drilled in at a shallow depth with good showing of gas. W. M. DARY, 224 E. 16th St., Long Beach, California.

WILL sell half int. in 250 acre oil and gas lease, one mile from a 100 bbl. well. Machine now on lease. Quick action necessary. B. Davis, P. O. Box 172, Celina, Tennessee.

Leases and Drilling Blocks

PANOLA COUNTY, EAST TEXAS, BLOCK 5,000 acres. Situated on flank of Sabine Uplift. Located on structure mapped by recognized geologist. Would consider sale or drilling arrangement with responsible parties. The merits of this acreage are worthy of your closest investigation. Address Box J-473, The Oil and Gas Journal, Tulsa, Oklahoma.

WILL SELL half interest in drilling block, or divide acreage and drill well on cost basis. Box 1203, Abilene, Texas.

WANTED 100 to 500 acres in fee potential oil land under lease to oil company. Must be low priced. Prefer Calif., New Mexico or Oklahoma. California Land & Investment Company, 741½ So. Alvarado, Los Angeles, California.

ILLINOIS OIL AND GAS LEASES
Semi-proven acreage, and wildcat drilling blocks. SAM J. BURKITT, Moweaqua, Ill.

LEASES—ROYALTIES near Ordovician Wildcat semi-proven offers reasonable chance play for quick money. E. CROFT, Proctor, Texas.

ATTENTION DEALERS: Have good leases around drilling wells in oil territory for sale at right prices. Sale of leases exempt by S. E. C. Will furnish maps, geological report, etc., to active dealers. Write or wire W. P. Spielberger & Co., Inc., P. O. Box 1982, Oklahoma City, Okla.

OIL LANDS—FOR SALE

Sealed proposals will be received by the undersigned until noon, Monday, August 1st, 1938, for leasing certain lands in Lafourche Parish, Louisiana, located in T-21-S, R-23-E; T-22-S, R-23-E; T-23-S, R-23-E; T-23-S, R-22-E; divided into three blocks:
No. 1—Comprising 12,761.38 acres
No. 2—Comprising 6,132.35 acres
No. 3—Comprising 8,197.93 acres
It is desired to invite proposals for all or part.

Proposals to be standard form of commercial or development lease with exploratory privileges not to exceed one (1) year and right of selection.

For further particulars and a copy of map outlining the property (Cost of map $1.00) address the undersigned.

The Edward Wisner Donation Advisory Committee reserves the right to reject any or all bids and to waive informalities.

FRED W. MATTHEWS,
Secretary-Treasurer,
Edward Wisner Donation Advisory Committee,
c/o Charity Hospital,
New Orleans, Louisiana.

Leases and Drilling Blocks

HIGH-CLASS 500 acre lease, checker boarded, dollar per acre and well 950 ft. Production 4 sides. Also 40 acres offsetting two producing wells 730 ft. $400. Particulars, Box 10, Kincaid, Kansas.

HAVE fifty thousand acres under lease in Scotts Bluff and Sioux counties, Nebraska, for development or commercial lease. Write Box 262, Scotts Bluff, Neb.

DRILLING deals wanted 50,000 acres Southern Illinois in and around production area. Elmer Gant, Anna, Illinois.

WANT PARTY OR PARTIES WITH $20,000 to buy half interest in oil well still flowing after 15 years—only well in this County producing from this formation. 35% of money pays for half interest in oil well and 2,000 acres to be leased, 65% goes in escrow (your ½ interest) for contract of a new 4,000 foot well. This requires immediate action. If interested enclose $1.00 for map, log and complete data. Box 712, Gladewater, Tex.

OPERATORS — DRILLERS
Our home state organization owns and operates drilling equipment, Centralia production, and have available off-set proven drilling blocks, semi-proven and wildcat acreage of known merit in the "hot" counties of the Illinois Basin. We will be glad to consider entering into working arrangements in drilling program or to supply acreage of known merit to those who establish their bona fides, and the entire facilities of our Field-Scout-Engineering-Valuation Depts. are available.
WRITE WIRE CALL
G. C. ROCKWOOD ORGANIZATION
Metropolitan Bldg. Phone 142
Centralia, Illinois.

OIL Lease, 240 acres, Sec. 64, La Chuse ranch, McMullen Co., Tex. Reasonable offer accepted. Owner, J. Manz, Andale, Kansas.

Business Opportunities

1680 acres Rich Gold Property, 1% cash Engineers reports. H. C. Sprinkle, Plaza Hotel, Denver, Colorado.

Legal Blanks

Since 1908 Burkhart's legal forms have served the Oil Industry—Free catalog & samples. Burkhart Printing & Sta. Co., 115 So. Cincinnati, Tulsa, Oklahoma.

Royalties

ANDREW J. BARRETT
The Philtower
Tulsa, Oklahoma.

Brokers—Salesmen

Sell in the most active area in the United States—The Permian Basin of West Texas and Southeastern New Mexico. From the standpoint of royalty investors this area has much to offer. Can supply you with choice non-producing royalties located on geophysical highs. Also drilling blocks, close in acreage to production, or wildcat leases. I maintain my own field men who cover this area for me. All offerings meet the requirements of the Security and Exchange Commission. Inquiries invited.

B. D. BUCKLEY
Paul Brown Bldg., St. Louis, Mo.

Producing and Non-Producing
OIL ROYALTIES
Registered Dealers Only
GRIMES ROYALTY CO.
Hunt Bldg. Tulsa, Okla.

ROYALTIES—ADEQUATE RESERVES
G. D. TERRIEN
412 Central Bank Bldg., Tulsa, Okla.

PRODUCING OIL ROYALTIES
15 years of experience.
L. H. WITWER
703 Kennedy Bldg., Tulsa, Okla.

NEW MEXICO Oil and Gas Leases and royalties. Send 50 cents in stamps for new State Oil Map of New Mexico. Roy G. Barton, Hobbs, New Mexico.

WRITE US TODAY
For our offering of producing and nonproducing oil royalties.
RUBUSH and COMPANY
1307 Pacific Ave. Dallas, Texas.

Financing

CAPITAL SEEKERS—Put your project before 260 Key-Men. Cost trifling. Details free. AMSTER LEONARD, Fox Theater Building, Detroit, Michigan.

INQUIRIES SOLICITED FROM CORPORATIONS INTERESTED IN RAISING CAPITAL THROUGH THE MARKETING OF CORPORATE SECURITIES.
BROWN HARTWELL COMPANY
110 EAST 42 ST., NEW YORK

For Sale—Maps

1938 REVISED EDITION
MAP of State of Texas, Eastern N. M., parts of Southern Okla., SW Ark. and La., shows Oil and Gas Fields in color, Counties, County Seats, elevations, coordinated alphabetical index of counties and fields.
Price $1.00 postpaid

Write for descriptive folder of Oilfield and County Ownership Maps.
ZINGERY OIL MAP COMPANY
Fair Building Fort Worth

Equipment Wanted

WANTED: for cash, complete Rotary Drilling Rig. Gasoline or Diesel. Drilling capacity 4000 feet. Give description and location. P. O. Box 1132, Dallas, Texas.

WANTED
USED ROTARY FISHING TOOLS
Rope Spears, Dog Overshots, etc. Write what you have and best price. Address Box J-481, The Oil and Gas Journal, Tulsa, Oklahoma.

CLASSIFIED DISPLAY RATES

Classified Display is set with a border and may be used in one or two column sizes.

1 Inch	*1 time*	*$5.00*
1 Inch	*13 times*	*4.50 per inch*
1 Inch	*26 times*	*4.00 per inch*
1 Inch	*52 times*	*3.50 per inch*

This space may be contracted for over a period of one year from the date of the first insertion and is PAYABLE IN ADVANCE, MONTHLY.

CLASSIFIED

Classified advertising rates: First insertion, 35 cents a line; each additional insertion, 25 cents a line, PAYABLE IN ADVANCE. Six words usually make a line. Count as a word each one-letter word and each group of figures. White-space computed at regular line rate. Allow two extra lines for blind ads. Ads of less than three lines not accepted. No formal acknowledgement is made, and proofs cannot be shown in advance of publication.

	1 time	2 times	3 times	4 times		1 time	2 times	3 times	4 times
3 Lines	*$1.05*	*$1.80*	*$2.55*	*$3.30*	*7 Lines*	*$2.45*	*$4.20*	*$5.95*	*$7.70*
4 Lines	*1.40*	*2.40*	*3.40*	*4.40*	*8 Lines*	*2.80*	*4.80*	*6.80*	*8.80*
5 Lines	*1.75*	*3.00*	*4.25*	*5.50*	*9 Lines*	*3.15*	*5.40*	*7.65*	*9.90*
6 Lines	*2.10*	*3.60*	*5.10*	*6.60*	*10 Lines*	*3.50*	*6.00*	*8.50*	*11.00*

We reserve the right to withhold all advertising of questionable character. To avoid delay be sure to send remittance with copy. We will set your ad in the smallest amount of space possible and refund all overpayments. One-time insertions will not be run until fully paid. Forms close MONDAY NOON before each issue date.

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma